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Shadows and Straws

IN ONE OF HIS lectures, William James records the tale of Margaret Fuller, New England transcendentalist, who is reported to have said, "I accept the universe." And then James goes on to say that someone is said to have repeated her words to Thomas Carlyle, who at once replied, "Gad! she'd better."

It is amusing and not at all improbable, as a tale, but does one, or can any one, accept the universe? Even if it were understandable,—even though it were founded upon a definable principle,—could it be accepted? Who knows? At present, as it passes our comprehension, we accept it, if we do or say we do, because it appears to be impossible to do anything else. But in the last analysis, there is actually no acceptance anywhere, for everyone is bent upon changing it in some manner. The transformation of the universe is indeed the commonest of occupations in this particular fragment upon which we happen to be dwelling. Land and water, mountain and valley, forest and plain, all bear mute witness to man's ceaseless protest over the universe as it is or was, and even as others wish it to be. No one is satisfied with it, not even the most primitive of races.

Dissatisfaction with the universe might easily be said to be the source of all human action. We do not know whether it is right or wrong to be dissatisfied. We believe, however, that it is right, and we applaud that dissatisfaction which spurs men on to endeavor. To what we call Success we give our plaudits and our solemn allegiance. Over what we call Failure we cast the black pall of ignominy. Our standard is a brutal one, merciless, relentless. Succeed or Fail is our command. There is no middle road. Occasionally, when we are in quiet places where we speak the truth that is in us, we let it be known to one another that in our heart we sincerely applaud and revere the effort of our friend who is said to have failed. For his pluck and daring, his energy and courage, his honesty and social-mindedness, we give full vent to that affectionate regard the possession of which we had almost forgotten. Were it not for the strong hold of tradition we should be on the point of voting his life a success. But in the end, returned to the arena of the struggle, girded afresh for our own battle, the old standard quietly prevails and our friend drops into the oblivion of Failure. It well may be, though, that more men there find Peace than do those others find it in the heaven of Success to which we think we have exalted them.

BUT IT IS NOT for amusement that one ventures the suggestion that it might be well, presently, to look a little more closely at the standards by which we judge the effort of men. For example, in a recent contribution in the English press, Sir Leo Chiozza Money, an eminent economist, points out that the estimates for the next English budget carry an item of 22,000,000 Pounds for the Air Forces, a sum nearly as great as was spent upon the entire English Army before the war. More than that he reminds us of what every intelligent person already knows, that the next war will be fought by the engineer and the chemist as war has not yet been fought. The lapse of twenty years he says,—it may conceivably be much less,—will find the nations of the world armed with aerial weapons capable of a kind of destruction the like of which has never been imagined, not even in the most fanciful of romances. And the supreme characteristic of that destruction will involve war, not upon fighting forces but upon peoples, upon towns, upon the old and the young, upon men, women, and children, without discrimination as to age or infirmity.

"The opening of the next war will be of lightning swiftness, with or without a formal declaration," says Sir Leo. Fleets of aerial monsters will unloose destruction upon a scale of terror still unimaginable. Armies and navies will be the forgotten puppets, the ridiculous and abandoned playthings of the childhood of nations. From the air, the ethereal cloud whence we draw the oxygen by which we live, will come death in wave upon wave of silent invisible gases.

These things are being prepared. These dreadful

engines are being designed. Chemist and engineer are straining every nerve and fibre in order to attain—what—shall we call it Success? Or might it be Failure? Must we pass through this bitter ordeal ere we shall learn to distinguish between the two? Probably there is no other way. Very likely we must go clear down into the Valley. We have just passed through the Shadow. But we have not learned.

BUT ALL OF THIS brings architecture face to face with a new problem. Buildings will, in less time than we now suppose, be subject to destruction on a scale far surpassing the most diabolic effort yet invented by infuriate man. Opinions now incline to the belief that it will be utterly impossible to invent a form of construction that will resist aerial bombs, and that even though it were possible, the schemes for the gaseous asphyxiation of humans by the thousand would leave the buildings quite useless. First reliance will of course be placed upon the elaborate systems of aerial defense, an inkling of the costly and intricate character of which may be gained by perusing the story of the aerial defense system of London during the war.

Tomorrow, even today, we must begin to take thought of these new dangers. For strangely enough, while one set of chemists and engineers is at work upon perfecting the destructive mechanisms, another is straining every nerve to devise ways and means for preservation. But here again, it is now generally accepted among scientists, so far as we are able to discover, that building above ground will have to give way to subterranean warrens, artfully connected with the air and fed by vicarious sunlight. Investors, they say, cannot longer take the risk of putting their money into something which may be destroyed utterly at less than a moment's notice. All of which will be true as never before, for while our seaports have at times shivered under the dread of an enemy visitation by sea, it must now be realized that Denver, Colorado, will, in the future, be no safer from destruction than is New York City today.

Hence, in the race between the forces of destruction and preservation, the subterranean warren at present looms large as the answer to the one, just as the winged monster seems the answer to the other. Those urban subways into which we now hurl ourselves twice a day will be amplified to provide traffic routes so far below the surface of the earth as to be completely removed from the effect of aerial bombs or lethal inhalations. All transportation will be carried on by these routes, so that men may journey from Eastport to Los Angeles without ever appearing on earth. Our mines will be tapped laterally, and their hidden wealth transported and transformed subterraneously. Food will be grown in underground gardens whence the topsoil of our planet will all have been removed, leaving the surface of our land a foodless arid desert.

What magnificent vistas of engineering and architectural skill open before our eyes as we contemplate the ultimate complete migration of man below ground, for of course the time is coming when no man shall dare to appear, except in the depths of night, lest he become an immediate victim of the air vultures of the enemy. There may be brief respites, during truces or exhaustion of the foe, but in the end, the outer crust of the globe will have become impossible of human inhabitation. In our dungeons, where engineering skill will oxygenate our lungs and bathe us in a light far surpassing anything that the sun was ever able to produce, we shall be safe. Our intakes for air and our outlets for water and waste will be so skilfully hidden as to be undiscoverable by the enemy. Only,—the dread day will undoubtedly arrive when some daring engineer will invade us by boring from afar, and then,—well, there will be an answer, no doubt. It is high time to be thinking of these things, is it not? In the War Departments of the world, preparations for the aerial Dance of Death are well under way.

It is a curious battle, this war of Success and Failure. Or is it a madness arising out of the fact that we have misnamed the two things?

SOME LITTLE TIME AGO, Lower Merion Township, one of the well-known localities near Philadelphia and a part of what is generally alluded to as the Main Line, called in a group of architects to help in the preparation of a building code. The Philadelphia Chapter of the Institute contributed the architects who were joined by Mr. John Ihlder, the then Secretary of the Philadelphia Housing Association. A code was drafted—it has already been referred to in these columns—and was finally adopted by the Township. It did not embody all the features which had been deemed desirable by those who drafted it, but on the whole it had suffered less than is the usual case, as it passed the scrutiny of citizens with interests at stake.

Not long after the adoption of the code, the community of Haverford was impelled to follow the example. Now, Haverford adjoins Lower Merion and generally speaking their interest might be supposed to be rather closely related. But Haverford, starting with the new Lower Merion Code as a base, is apparently alive to the fact that by making its own code less onerous than that of its neighbors, it will be the more likely to attract building and improve the condition of the holders of idle land. It seems rather difficult to put any other construction upon the contention by Haverford that a code which required only 350 square feet of open land area for any dwelling, whether single or multiple, is a good code. Yet the adoption of such a clause would almost inevitably force a type of building in Haverford such as would quickly repeat the very misery and crowding of those urban spawnings from which the suburbanite had fled in disgust.

We hope that whoever is responsible for the insertion of such a clause in the Haverford building code will be unable to persuade Haverfordians that it is in the interest of the community to adopt it. Undoubtedly it would be for the immediate interest of someone. But quite as undoubtedly it would be for the worst possible interest of Haverford in the long run.

MANY QUESTIONS are being asked about the Building Guilds of England. The answer to all of them, generally, is no more than to say that there are some fifty experiments being carried on in England at the present time. The London Guild, for example, has just concluded a contract for 400 houses, costing 400,000 Pounds, to be built at Walthamstow, near London. Work is to begin at once, and is, indeed, already under way. The contract in this instance creates what might be called a triple alliance. First, there is the Guild which does the work; second, the Cooperative Wholesale Society which supplies the materials, and third, the Cooperative Insurance Society which guarantees the performance of the contract, up to 20 per cent of the estimated cost. The administration is exceedingly democratic, so that the control of the work is really in the hands of all the workers. When the Building Trades Parliament met in November, there was laid before it a complete scheme for the establishment of a National Guild of Builders, but the results of the discussion were not available as we went to press. Tentative plans for Building Guilds in America are being discussed in several places, but it seems doubtful, as yet, whether the American trade union movement is ready for such a forward step.

C. H. W.

British Architects and American Architecture

From an ENGLISH CORRESPONDENT.

AMERICAN ARCHITECTURE is a subject of great interest on this side. Century old cathedrals and other venerable monuments may inspire the young architect, but the work that he hopes and expects to be called upon to perform is mainly of that utilitarian order which has been as yet most completely developed beyond the Atlantic. American department stores, railway stations, skyscrapers and the like are all of them subjects to which frequent reference is made in the technical press on this side, and they have all of them been discussed by the Royal Institute of British Architects and kindred associations.

There was a great deal of consideration of American architecture in the sessions of the R. I. B. A., devoted to the question of higher buildings for London, when Mr. Austen Hall read a paper on the planning of American Department stores, also when there was presented the paper by Mr. Ben J. Lubschez, (Fellow of the American Institute of Architects), the theme of which was the two great railway stations of New York.

American Department Stores

Mr. Austen Hall's lecture was illustrated by lantern slides showing interiors and exteriors of a number of American department stores, and of these stores he gave descriptions of a few of the best known. The store of which he gave the fullest details was Wanamaker's of Philadelphia. He is certainly a very appreciative student of the department of American architecture on which he lectured; he pronounced Fifth Avenue probably the finest street in the world. Generalising on his subject, fresh problems, he told his audience, demand fresh thought, and if we cannot find this for every emergency we shall fail in the service we desire to give. In America, he said, the architect works with certain advantages as compared with his English brother. The first is an immense appreciation of fine architecture by all classes of the public, and the second the consideration by the business man of his building as an investment—something more than an advertisement, and not a tax on his capital. He wishes it fine in every respect. Another advantage of the American architect is that he does not have to work under the utterly out of date building acts which apply on this side.

The discussion which followed was not restricted entirely to architects. Mr. Gordon Selfridge, (an American department store owner who has located in London) led off with some remarks extending what the lecturer had said on the attitude of the American business man towards his store. Mr. Selfridge himself was not in this respect preaching a doctrine differing from what he practises—his store is the finest building of the kind in London. Later in the discussion Mr. Clark, (also of Selfridge's) dotted his principal's "i's" and crossed his "t's." The feature that impressed him most in American stores was, he said, the simplicity of the general treatment, the freedom of motion and the general facilities for departmental planning.

Among architectural critics Mr. Vincent Harris said that America had contributed two essentially modern types of building to the world—the modern store building and the modern office building—and had worked these out to a logical conclusion with a thoroughness

absolutely American. Other critics quite naturally spoke most about the building of department stores in London, but Mr. J. J. Joass reverted to the interest in architecture shown by Americans. When Wanamaker's new building was finished, he said, the store was opened by the President of the Republic attended by a bodyguard of over a thousand U. S. A. troops. This was an astonishing thing for us to listen to.

Mr. Robert Atkinson, F. R. I. B. A., a young architect just returned from a three months' visit to the United States, said the extraordinary efficiency of the American architect was due to education. Perhaps this flattering exordium is as much as it is advisable to give of the remarks he made on this occasion. However, if I may venture to be candid he went on to say that a great part of the success of American building is due to the engineer, who plays a very great part in the planning of the building without getting credit for so doing. The managers of the stores also have a great deal to do with the planning. An interesting point that Mr. Atkinson noted was that in Chicago the lift is so crowded and overcrowded that for the first four or five floors of the department store it has been superseded by the escalator. The escalator is known here but hardly ever installed for a purpose of this sort. With this remark about lifts may be connected another point that came out in the course of the discussion. It appeared that in America the elevator was put a long way from the door, as much as a hundred feet perhaps; the idea being that the customer, in traversing this extensive space, would probably see something on a counter, and buy it before he had time to reflect that he did not want it. But here the lift was put as near as possible to the door so as to avoid unnecessary trampling of the floor by muddy boots.

American Railway Stations

As to Mr. Lubschez's paper on the two great terminal stations of New York, as he could not be present it was read for him by Mr. Arthur Keen, the Honorary Secretary of the Society. On this occasion Professor Adshead led the discussion. He said that he had himself seen these stations just after their completion nine years ago, and he agreed with Mr. Lubschez as to their magnificence and success. In the course of the paper Mr. Lubschez had mentioned that it was a controversial question with American architects whether the use of an ancient motif like the baths of Caracalla for a modern station was legitimate. Professor Adshead said he remembered discussing this question until late in the morning at the Harvard Club with several enthusiasts, and opinion had been far from unanimous that the Pennsylvania station was altogether a success architecturally speaking; but personally, he believed in sacrificing a good deal of what most people called utility in order to create a great impression, and there was no doubt about it, the Pennsylvania station was a most impressive building. Comparing it with the great terminal stations which have been built or rebuilt in London within recent years, Professor Adshead said it had the advantage of a magnificent and symmetrical site. The great London stations suffered from the absence of a fine approach. He thought one of the most interesting and successful parts of the Pennsylvania station was the concourse. Steel had been used architecturally there; he wished engineers here would do something of the same sort.

Of the Grand Central Station, he said, echoing Mr. Lubschez, that it was a very complex station and might be described as a French *tour de force*. It had not the traditional qualities of the Pennsylvania station, but he was not quite sure that it was not architecturally even better; though personally he was not quite satisfied as to the necessity of raising it one story above the street level. This had led to very great complications in regard to the approach.

If this was an encomium, other architects were not so flattering. Mr. W. R. Davidge, speaking as one of those who had visited the stations, confessed himself a little disappointed, certainly with the Pennsylvania station. He recognized the difficulties. When the Hudson river tunnels were made, a new cross country track was opened, making it possible for New York to spread east and west. But the result was that the station was built over what was practically a very deep tube railway. Thus, very great difficulties with regard to the levels had to be dealt with. The architect had evolved a masterly work of art, but the whole of his efforts had been concentrated in the great central concourse. After that concourse, to find the train level itself with narrow platforms and lighted artificially was distinctly disappointing. In another way—and on this the author of the paper had touched—the magnificent concourse was a disappointment. It appeared that in New York a man going for a train commonly arrives in a rush, and, in the case of the Pennsylvania station, if he has already got his ticket, the quickest way for him to catch his train is by short cuts which avoid the concourse altogether. Thus the whole effect of this splendid hall is lost.

Of the Grand Central station Mr. Davidge said it was undoubtedly a very fine work, as fine a station and as convenient a building as could well be devised. The immense scale and the charming proportions of both buildings must impress all who visited them. It was a pity there was not better communication between them. Mr. W. Woodward was apparently jealous, and covered his feeling by an affectation of disdain. Americans, he said, could never do anything unless they knocked into a cocked hat all that had been done in Europe. To this Mr. Arthur Bartlett replied that the railway stations were designed to serve a continent

with a population of eighty or ninety millions. They might well be of magnificent proportions. He thought the stations extraordinarily beautiful. The Chairman for the evening, (Mr. Walter Cave) had also seen the stations and he praised them. But he had to agree that the New York people did not see the great hall of the Pennsylvania station; so that in effect it was a great waste of space.

Impressions of a Visitor

It will be seen that there was a general note of appreciation of American architecture through all these discussions, but not enthusiasm. This, however, was reached on the occasion when Mr. Robert Atkinson, previously mentioned in this article, delivered an address before the Architectural Association—a smaller rival of the Institute. His first impression of New York, he said—and this will perhaps interest the American reader quite as much as anything directly connected with architecture—his first impression was social. The first thing that impressed him was the multitude of types in the streets, the enormous number of people who would be foreign to English eyes. The fact that all followed the same fashion in clothes and hats gave a superficial uniformity, but beneath the surface one recognized every nationality under the sun.

The enthusiasm which Mr. Atkinson felt for some forms of American architects was not I must say aroused by the New York skyscrapers. These did not please him. Quoting the joke about winding these buildings down so as to let the moon go by, he said the impression given was as if the winding apparatus had gone wrong and the buildings been left sticking up at all sorts of heights. They provided the accommodation they were called upon to give but they were not architecturally a success. They were not impressive in the way that a cathedral or old building in England was impressive. Probably half a dozen were successful. These were generally designed with three or four stories near the street in the form of a classic temple, above this a cliff of plain walling, and then another temple on the roof. They were more successful if there was a visible roof. Sometimes there was a copy of the campanile of Saint Mark or other comparable construction. The Woolworth building was the only skyscraper in which you could say that the design was homogeneous; and its multitude of windows was not so obtrusive as with other buildings of the same class. Its gothic detail was unfortunate, for it was not really suitable to the building; it was especially unfortunate in that other less competent architects had followed it and produced less successful results.

Apart from skyscrapers Mr. Atkinson professed an immense admiration for American architecture, which was, he said, miles ahead of anything we had in England. His opinion of the New York shopping district agreed with that mentioned above as being expressed by Mr. Austen Hall at the R. I. B. A. These buildings were, he said, magnificent. They were very seldom more than twelve stories high. The great thing about them was their beautiful detail. Fifth Avenue was a street continuous from end to end of fine shopfronts. He thought American hotels very fine indeed, and the public buildings magnificent. This last remark had no special reference to buildings which the present generation of Americans have received from their fathers; the lantern slides which illustrated it were of quite modern buildings. For all his enthusiasm Mr. Atkinson was not entirely uncritical. He objected that the detail was always neo-something or other; one would rather have thought, he said, that a country like America could produce a new design of its own based on modern requirements. Looking at a fine American buildiing one had the feeling that every part of it had been lifted bodily from some book or other. He thought this was due to the method of training; the schools of architecture were very efficient but stopped just short of the stage of creation. The American architect's plans and constructions were eminently modern in every sense, but he clothed these in copy book designs.

Here also, if he condemned, Mr. Atkinson had something to say on the other side. In Chicago, he said, a few years ago a new school had been begun by Sullivan which was free from this defect; and that school was not yet dead in some of the cities of the middle west. Mr. Atkinson showed some lantern slides in illustration of this point; of one showing a view of a bank he said, "It is not neo-anything. It has many defects, is possibly very ugly; but it is certainly an expression of something as this man understood it in a new spirit; and that spirit is becoming more adapted to its requirements. * * * They are improving every day. * * * Even in domestic architecture that feeling is beginning to be appreciated."

Architects in America, said Mr. Atkinson, were in the van of every improvement and every modern movement. The way in which the large cities were catering for the future could only be traced to the influence of the architect; for there was no school of sculpture or painting on anything like the same scale as that of architecture. The town planning achievements were remarkable.

The park centres of American cities delighted him. In America even worse than here, he said, one noticed the inability of the public to amuse themselves. Great crowds of people were to be seen in the evenings looking for something to do; and the civic authorities were endeavoring to meet this want by providing parks with open-air swimming baths, tea pavillions, libraries and other attractions. These parks and the outdoor buildings in them Mr. Atkinson praised very highly: "Ev-

erything done is done in the best way. * * * It is not a case of utility beyond a certain point. * * * Chicago is one of the dirtiest cities in the world, but in Chicago there are the finest gardens in America; and they are new, not copies of Versailles or anything of the sort."

Of the garden suburbs he said that they were laid out very much as in England, for American architects studied English domestic architecture and admired it immensely though they had no use for anything else from this side. Among small points which he noticed particularly in connection with these garden suburbs, was the use of ferro-concrete for lamp-posts and other things where iron is almost exclusively employed in this country, and the finishing of that ferro-concrete with a surface of silica, a practice as yet not known here.

In California Mr. Atkinson said he had come across a very interesting type, a development on the old Spanish-Mexican lines. The old buildings in baked mud yet standing in southern California were the prototype of modern concrete, and lent themselves to concrete imitation better than any other material. American architects had realized that in this style of building they had got away from the classic, and they were gradually developing something from it which might become an American style.

Mr. Atkinson's last remark was peculiarly flattering to his American hosts. Like his opening remark it was not architectural but social. He had been received with a hospitality, he said, which, having regard to our coldness to the stranger, made him ashamed to be an Englishman. The remark was not without some effect. The discussion that followed was not confined to the architectural matter of the lecture, and it was resolved to form something in the nature of a committee to receive American architectural visitors in a more hospitable manner than had previously been the case.

News Stands and Architecture

By W. R. B. WILLCOX.

THE WHOLE afternoon had been spent with a client, going over and over estimates for a building which he hoped to build upon a lot on which he held an option. He had first broached the subject of building with inspiring enthusiasm. He wanted a "real building," he said,—one which would suggest, or typify, the substantial character of his business. He was impressed, too, with the idea that the public was entitled to consideration at the hands of those who build and he intended to demonstrate his appreciation of that obligation.

It was his first venture. It soon shocked him to discover that probable returns from his business did not warrant the investment required by such a building as he had in mind. It had been painful to witness his ardor cool as, one after another, the evidences of refinement and distinction were sacrificed to financial necessity. A granite front had yielded to terra cotta and then to brick, reinforced concrete had given way to mill construction, terrazzo, metal trim and plate glass,—all had met their Waterloo. Finally, the point had been reached, where only the building ordinances interposed to prevent such further violence to his dream-building as might make its unpretentious substitute a possibility. "The question is," he said, "whether I can build *anything*,—at any rate on that site!" Disappointed and disgusted he left the office. Ah, me! Had I overlooked some other possible reduction permissible under the ordinances, which would save a commission? It was past the hour of closing, so shortly I followed him.

It happened to be a wild night. Rain in torrents slanted in every direction before sharp gusts of wind. Umbrellas of home-hurrying crowds bobbed about against the shifting onslaught of the storm. At the first corner, my friend the newsboy was on the point of handing me the evening papers, when a violent squall whirled down the cross street. Had he not been spry, his stock of papers would have been swept from the protection of the worn oilcloth on the rickety old dry goods box which served him for a news stand.

As I grabbed the papers in a moment's lull, I asked: "Why don't you get a *real* stand, with a cover to it, to protect your papers?" The remark was thrown out with kindly interest,—he had caught it, apparently, as some grim joke, because he flashed back: "Sure, why don't I build a block!" I wanted to stop to explain the intent of my remark, but he was busy at once with other customers and I was pushed along into the stream of wind-tossed umbrellas. "Well," I thought "I'll explain at a more convenient time." Of course, I never did,—one seldom explains little things like that,—and by the time I saw him again, the incident had passed from mind.

A couple of years later, my attention was arrested by an item in the papers that a newsboy was being sued for unpaid rent for the use of the street corner where he had been selling papers. That struck me as so extraordinary, that I inquired of my friend the newsboy, if it were customary for newsboys to pay rent for the privilege of selling papers on street corners. "Well, rather!" was his reply. "To whom do they pay it?" I asked, to which he answered: "To the *owners*,—who d'ye suppose!" The tone of his voice made me wonder, instantly, if my complacent assumption that street corners were property of the city, was justified.

Somewhat embarrassed, I challenged. "Well! Who *does* own them? By way of reply, my young friend enlightened me as to the business system which had developed in the newsboy world, to which, at that time, there had been little outspoken objection.

It seems that in the early days, the boy with the strong arm and the swift punch had been able to convince aggressive competitors that the corner where he chose to sell papers, was "his corner." It wasn't long before the "good corners"—those where the passing crowd was thickest,—were "owned" by the "hustlers," who gave employment to the rest of the newsboys. That was the way my informant "got his start," he said. Together with two or three other "kids," he sold papers for one of the "hustlers," who paid them a percentage on the sales.

"And you had to sell *some papers,* if you made any money, believe me!" he ejaculated. Then with evident admiration for business efficiency as he had met it in the struggles of those enterprising days, he went on: "The *Boss* didn't, though. The more *you* sold, the less he *had* to, and you can take it from me, he fixed the commissions so *he* didn't have to worry whether you worked or *not.*" After another pause, during which recollection had stirred a different emotion, he added: "Huh! Say! And just as you got to making a little more than you did at first, he put you on reg'lar pay,—so much an hour,—when you *worked!*—if it rained, he said he didn't *need* you. You never knew whether you had a job, or whether you didn't."

The boys, it seems, didn't fancy that arrangement, because no matter how keen and attentive they were, or how hard they worked, they couldn't earn any more money. "It didn't do any good to kick, either" he said; "If you did, the Boss'd tell you, if you didn't like your job, you could quit,—see? Cause there was always a bunch of kids waitin' round for a job." The consequence was that the boys did a "lot of slacking," as he expressed it, and the Boss had to "stick around" to see that they attended to business.

As it was, boys were constantly quitting, or losing their jobs, and the "labor turnover" became an item of importance, as well as the demands upon the Boss's time. This led in due course, to renting of corners by their "owners,"—the rent being determined by probable sales and competition for locations among boys who wanted to take a chance at independent careers. There were enough of the latter to keep acceptable profits at a sufficiently low figure to satisfy the "owner," whose sole task then was to keep an eye on the amount of business possible to secure. If the forthcoming returns fell below that amount, he ejected that tenant and got a new one, who could increase sales to a point where the owner could exact a larger rent, while leaving the newsboy the same profit obtained by the former tenant.

It was the refusal of one of these tenants to recognize the right of an "owner" to collect rent, that led to the previously referred to suit at law. The judge had thrown the case out of court, which seemed to imply that the law still regarded street corners as city property, and that the so-called owner had no legal standing. I never learned whether this case was finally adjusted in accordance with the original methods of settlement of such disputes, but such questioning of the rights of property evidently did not start a revolution, because the system of renting locations to newsboys by self-constituted "owners" not only continued, but the idea of property rights in corners became still more firmly entrenched,—perhaps, because the court failed to excoriate a practice so foreign to our democratic notions of individual rights.

Whether due to the outcome of this case, or some other cause, it may be that the uncertainty created by the unwillingness of the court to safeguard the "owner's" rents, led to the introduction of the custom of selling ownership rights, which were capitalized after the fashion of general business undertakings. This was all so interesting to me, that I asked my newsboy friend one day, if he "owned" the corner where he sold papers. "No, I don't,—but I am going to buy it as soon as I can save the price; got nine hundred dollars towards it!" he answered. "Nine hundred dollars!" I exclaimed in astonishment. "That's nothing" he said, "some corners are out of sight."

It struck me that his own prospective purchase must be approaching that limit, and as something in the situation took my mind back to the stormy night, I asked him if he remembered how once I wondered why he didn't have a better stand. "You bet I do! Big chance, if you want to get anywhere in *this* business," he said, and continued: "Perhaps, I'll have one when I get my corner, * * * but Hell! what's the use? You couldn't sell any more papers,—you couldn't make any more money;" and after a pause: "You haven't seen any of the corner guys furnishing any decent stands, have you?" I had to admit that I had not seen any particularly attractive, or serviceable stands. "Why should they?" he went on; "If the fellow what rents the corner wants to blow himself, nobody is going to stop him."

As I revolved the thing in my mind, I had to agree with what seemed to be his clear conviction, that from the business point of view, an improvement in stands was a needless expense, and I reflected, from an architectural point of view, a highly improbable event. I said: "You figure that you cannot afford a decent stand while you are saving money to buy a corner, and when you have bought it, you can rent it and let the other fellow worry,—and he can't afford a decent stand because he has all he can do to pay *you* rent,—and consequently, *nobody* ever gets to do anything

about it,—and newstands generally resemble the fag end of a dry goods store." "Guessed right the first time!" was his rejoinder.

As I walked away, I amused myself picturing what a tough job an architect would have to bring about an improvement in design of news stands! Just about such a job as I would have to get my client to build the sort of building he had conceived as the proper premises for his business, after his trying experience! At first, I felt the old yearning instinctively surge up within me, for some effective means of educating the public,—for I realized that newsboys were as much the public as anybody else,—in the esthetics, in an appreciation of—architecture, for instance.

Yet, somehow, as I recalled the conversations I had had with my newsboy friend, and his momentary enjoyment of the prospect of having a decent stand when he should become the proud owner of a corner, a disquieting question kept beating at the walls of age-long conviction: Is it, after all, lack of appreciation,—the need of education,—that fosters the undesirable, the inconvenient, the inartistic,—nay, the utter lack, at times, of some useful accommodation, however shabby? Would it, I thought, be appropriate to refer the question to the Institute Committee on Education? Perhaps it might better go to the new Congress of the Building Industry.

I was in the midst of such cogitations when I reached my office. There I found my prospective client. After many conferences he had relinquished his option and given up his building project and it had been some time since I had seen him. In a half apologetic manner he began: "Well, I'm going to build!" My interest naturally awakened at once. "That so? Fine!" Seemingly somewhat embarrassed, he interrupted me. "Wouldn't exactly say it was 'fine,'—I had to do something and * * * well, I got a cheap lot, pretty well out, * * * building ordinances won't trouble me much there" (with a feeble smile). "Can build something I can use for a while, you know, * * * Not a very desirable location, * * * cost a little more to do business, but save on taxes. After a few years, I figure I can buy a good site down town * * * (there'll be places left) * * * and have the sort of building I want."

With honest sympathy for his evident disappointment, I broke in: "That's too bad! What sort of building will it be?" "Oh," he replied: "Just a wooden thing. I got hold of a small contractor, * * * he made some plans, * * * it don't amount to anything, and I told him to go ahead,—knew you wouldn't want to be bothered with it, * * * but you wait a while,—we'll have a real job *yet!*" He'd made his explanations,—he felt a little better. With that he went away, leaving me to meditate upon the vicissitudes of Art and Life.

American Academy In Rome

Collaborative Prize Competition, 1920.

The American Academy in Rome announces the result of the Competition for the Collaborative Prize offered by the American Institute of Architects. The competitors, it will be remembered, must arrange to collaborate in such manner that no students of the same year shall join together. That is to say, of the three competitors, one must be a first year man, one a second year man, and one a third year man. The details of the competition are printed below.

Statement of the problem: At the junction of two corridors in a public building is a room thirty feet square between rough brick walls. This room is at the corner of the building and being higher than the corridors forms a cupola. It may, therefore, be lighted from four sides as well as the top, if desired. It is proposed to finish this room architecturally, and to decorate the walls with allegorical paintings so as to make the room suitable for the installation of the statue of a great general, who has become a popular hero. The height of the room and its fenestration may be determined by the competitors. The finished room may be of any shape desired and may include niches and sculpture.

The drawings required are as follows: Plan, ¼" scale; Section through the room at ¾" scale. (The plan and section shall be on the same sheet). There is required also a plaster model, at ¾" scale, of the statue of the General, including a pedestal.

Findings of the jury: Breck Trowbridge, Chairman; Edwin H. Blashfield, Francis C. Jones, Wm. Mitchell Kendall, Paul Manship, Charles A. Platt, Ferruccio Vitale. The Award:

1. Philip T. Shutze, Architect; Allyn Cox, Painter; Thomas H. Jones, Sculptor.

2. James H. Chillman, Jr., Architect; Russell Cowles, Painter; Carl P. Jennewein, Sculptor.

3. Raymond M. Kennedy, Architect; Salvatore Lascari, Painter; Joseph E. Renier, Sculptor.

The Jury awarded first place to No. 1 for the general excellence of composition and harmonious tone of color. The Jury considered that the realistic figures promenading in front of the architectural lines of the dome were wrong in principle, but brilliantly conceived and executed, and that the execution of the model of the figure of the General was bad.

No. 2 was commended for excellence of architectural detail, rendering, lettering and general presentation, although a more restrained use of ornamentation was recommended.

No. 3 was deemed to offer the best opportunity for mural decoration in color. The painter had the right idea of what its character should be, but while the background was excellent, the grouping of figures in the foreground left much to be desired. The niche and the figure were not well related.

Illustrations of the three winning drawings are shown on the three following pages.

A MONVMENT TO A GREAT GENERAL
COLLABORATIVE PROBLEM AMERICAN ACADEMY IN ROME
TOM JONES SCVLPTOR · ALLYN COX PAINTER PHIL SHVTZE ARCHITECT
M C M X X

American Academy in Rome—Collaborative Prize Competition
First Prize

American Academy in Rome—Collaborative Prize Competition
Second Prize

American Academy in Rome—Collaborative Prize Competition
Third Prize

WOOLWORTH BUILDING FROM THE MUNICIPAL BUILDING
After a photograph by Ben J. Lubschez

Bryant Park, New York City
After a photograph by Ben J. Lubschez

ST. PAUL'S, NEW YORK CITY
After a photograph by Ben J. Lubschez

PENNSYLVANIA STATION, NEW YORK CITY—GENERAL WAITING ROOM
After a photograph by Ben J. Lubschez

Pennsylvania Station, New York City—31st Street Cab Driveway
After a photograph by Ben J. Lubschez

"What is the Matter with the Building Industry?"

THIS was the subject of discussion at the afternoon meeting of the New York State Association of Architects held in New York City on November 12th. At no previous assembly of architects attended by the reporter was there so full a discussion of the problem from so many points of view. Yet it seems unlikely that anyone could have left the meeting with a clear feeling that he knew what is the matter with the building industry. The wide divergence of opinion only emphasises the necessity for carrying out the complete study and analysis suggested in the resolution adopted at the Atlantic City Conference. It is true that the meeting in New York City touched upon a good many aspects of the situation, but it by no means cleared the atmosphere. Several of the speakers seemed at different times to be on the point of dealing with what Mr. Comstock referred to as the basic problems of land and credit, but on the whole these two questions were scarcely touched.

Mr. Allen E. Beals of Dow's Reports presented a very interesting array of statistics on building materials as prepared from information gathered from the extensive reporting system of his firm. He traced the volume of building and the cost thereof from 1911 when the total volume in the United States was 605 million square feet costing $1.50 per square foot, to the present time, when the cost has risen to $3.20 a square foot. Except in the year 1915 when there was a slight shrinkage in cost, these prices have risen steadily and have been accompanied by a varying decline in building volume. This decline was very noticeable in the year 1917 with a total volume of 338 million square feet, and in 1918, with a volume of 185 million square feet, the nine months of 1920 showing a volume of 325 million square feet. Mr. Beals very emphatically assigned the blame for the present condition of the building industry to the ill-advised interference of the government in war time and to the equally ill-advised lack of government control after the war. He pointed out that at the close of the war, due to the enforced governmental restriction of output during the war with its consequent plant deterioration, there were not enough building materials on hand to supply one fourth of the construction work offered and that there was also a serious shortage of workers. Also that at the present time output was not keeping pace with demand and that he saw no way by which the price of building materials could fall for a long period. He also pointed out the fact that construction work outside of the building industry could utilize all of the materials available and he unhesitatingly expressed the conviction that intending builders now waiting for a fall in prices might very likely find it impossible to buy materials.

Mr. W. G. Luce of the Hegeman-Harris company speaking for the contractors, made a very eloquent plea for cooperation. He touched upon the question of credit and cited the serious problem raised by the present method of providing this necessary element of building, but on the whole he believed that the troubles of the building industry could be solved only through the spirit of cooperation and the application of the Golden Rule. Just how the Golden Rule was to be applied to determining the amount and division of profits he did not explain.

Mr. Louis K. Comstock, of L. K. Comstock and Co., was listed on the program to speak for the sub-contractor. His address however was from a much broader point of view and is reprinted elsewhere in this issue.

Mr. Ronald Taylor, President of the Building Trades Employees Association, gave the employers' view point in respect to negotiations with the trade unions, while Mr. William P. Bannister, representing the Brooklyn Chapter, translated the evils of the building industry into the biological symbols of metabolism and katabolism. He dwelt very strongly on the necessity for ridding the industry of the evils within it even as the function of katabolism is to rid the human organism of malevolent waste materials. He was convinced, he said, that the great difficulty at the present time was that investors have lost faith in the efficient conduct of the building industry; that they believe it to be saddled with too much unprofitable labor and service. "The building industry can not regain its balance," said Mr. Bannister, "until there have been eliminated from it all unjust payments for services not rendered." This is the fundamental truth that the building industry must accept. When it has done that it will soon set about discovering how to eliminate. Then and not till then will it begin to get anywhere.

Mr. Robert Glenn, of Todd, Irons and Robertson, spoke from the point of view of the building superintendent. His account of the direction of the Cunard building was of fascinating interest. Through it ran the vital faith in the workers' pride of craftsmanship and the workers' despite of ignorant and careless supervision. His plea was for a revival of the old system of building where the contractor was himself a master workman, competent to supervise and not merely a financial operator. He gave to the process of building a homely and deeply human significance.

The morning session of the Association was devoted to the report of the President, Mr. Ornan H. Waltz and to the very interesting report of the Associations' delegates to the last Institute convention, Mr. Edward H. Loth of Troy and Mr. James Riley Gordon of New York City. Certainly the members of the Institute would have been interested to hear the eloquent appreciation of the Institute's labors for the profession as they were expressed by Mr. Loth who read the report. Following this there was a discussion of the housing problem. This was opened by Mr. Burt L. Fenner, President of the New York Chapter, who very briefly recited the salient facts. Mr. Fenner quite frankly asked whether the building industry was a properly designed machine and answered the question by saying that ultimately we shall have to design a new one which would take much time, patience and skill. In the meantime he hoped that the old machine might be patched up—that all unearned profits might be done away with and that the federal government might not be forced to undertake the housing of our population, but that it would, on the contrary, undertake a scientific investigation of the problem.

The Housing Committee of the Association then pre-

sented its report which was unanimously adopted and is printed in the Housing and Community Planning section of this issue of the Journal.

As a result of the discussion of housing there was appointed a committee of three to prepare a resolution for submission at the afternoon session. The resolution was as follows:

Whereas, the housing situation in almost every community of the State is extremely serious and practically no new houses are being built because such building offers no profit, and whereas it is evident that dependence on profit as an inducement for the housing of all the community is not producing the necessary relief, therefore be it *Resolved:* That we must try to find new viewpoints leading to new methods and that we start the essential educational process leading to such new methods by encouraging the people themselves and the workers to organize their own powers in credit and in work that they may build for themselves without profit to any intermediary.

The resolution was laid on the table and ordered printed in the Association Bulletin that it might receive full consideration at the next meeting.

Altogether the meeting was a most successful one. The sessions were well attended and the discussions indicated a keen interest in those aspects of the building industry which have too long escaped attention. The next meeting of the Association was fixed at Albany in the spring of 1921.

The Blot on the Escutcheon

Building Conditions in New York City

THE Joint Legislative Housing Committee began the investigation of building conditions in New York City, referred to in our last issue, on October 20th, under the direction of its associate counsel, Mr. Samuel Untermeyer, who clearly outlined the purpose of the investigation at the opening of the third session on October 23rd as follows:

"Perhaps I should briefly outline at this stage the general trend of the proof that will be offered on the branch of the inquiry covering the relation of unlawful combinations among manufacturers of and dealers in building materials and supplies and of labor unions affiliated with them so that you will have in your minds a proper prospectus and will be the better able to understand the logical sequence of the evidence as it is presented.

"Now, what we intend to show is a banding together among the material men, first, in separate associations in each line of thirty-two lines engaged in building materials from the manufacturer down to the retailer; and then banding together of the different associations under the head of the Building Materials Employers' Association; and then we purpose to show that not only has labor been dragnetted into the Building Trades Council in many instances, but that employers have been dragnetted and forced into certain of these associations by the relation that exists between the Building Trades Council and the Building Trades Employers' Association, so that if an employer and building materials man does not happen to be a member of the association that agrees on prices, and distributes orders, he may, although he is employing only union labor, wake up in the morning to find his men one by one pulled away from his job. So that it is a case of you tickle me and I tickle you, as between these organizations, each one strengthening the other, all at the expense of organized labor.

"You will find as you go on that men are drawn away from building enterprises in this city without knowing what it is about; the workingmen never being able to find out; no question of wages, no question of hours of labor, no question of union labor, which most of us, in these enlightened days, believe in; but some question or other outside that they know nothing about. I think you will find that, as we go on, the little small change that was referred to yesterday is a very small and trifling item in this organized raid upon the building industry, and that it is so widespread that until it has been checked and punished building operations in the City of New York are simply impossible."

Someone must be held to account for engaging in such notorious actions. We must have, it seems, a real live victim in the shape of an individual.

This demand for a real live victim seemed to the reporter to be drawing interest away from what appeared to be the most important matter to be looked into. The men on the stand appeared as individuals and representatives of groups; they appeared as puppets—but puppets of what? Were they puppets of a system, a ring, or were they puppets acting in response to something more extensive—far reaching—more pervasive?

The reporter recalled certain words and phrases commonly used in reference to entirely "legitimate" practices as the same are rated in the world of business enterprise, such as "deals," "putting up a bluff," "taking advantage of a situation," "bringing the other to terms," and so forth, and he was dubious about drawing a very definite line as between what was rated as entirely legitimate and what was not so rated.

According to the reporter's understanding of these terms, as used in the world of large scale finance and as related to the issuance of credit and refunding transactions, to big business and matters having to do with international relations, it seemed that the witnesses were triflers rather than adepts. In contrast, their technique of systematic obstruction was crude and vulgar, and it would seem, if one may judge by what was said in the press, that it was their crudeness of techinque in getting something for nothing, or in getting the most money while giving the least in return, which furnished the ground for complaint. That is to say, apparently both press and public are not questioning the stability of the foundation upon which the structure of business enterprise rests. The outstanding purpose of business enterprise, whether getting something for nothing or whether getting the most while giving the least, is quite sufficient, so it seems. Some way therefore must be found of refining the crude and vulgar methods used in the building business!

THE BLOT ON THE ESCUTCHEON

The investigation is now in full swing, so it is too early to pass judgment or to deal with the testimony in detail. The reporter even begs to be excused from drawing conclusions and for the present merely sets down what he thought about as he listened to the testimony.

As he observed the witnesses under Mr. Untermeyer's fire, he asked himself this: Is Mr. Untermeyer investigating the action of men—groups—organizations—or is he investigating a system—an institution—a point of view? During the sessions the reporter read what the papers had to say about it—read the news items and the editorials. The headlines ran like this: "Contractor in Terror of Labor Boss." "Committee Hears of Trust in Building Materials." "Millionaire Plumber Pleads Utter Ruin will Follow if he Reveals Building Combine." "Witness Paints Brindell as Despot, Ruling and Ruining Labor and Capital." "Strikes Ordered as Payments Lagged." "$7,500.00 Demanded on One Job." "Rich House Wrecker is Driven into Bankruptcy by Hounding." "Lath Combine Revealed." "Huge Graft paid Brindell, Men and Employers Swear." "Contractor tells of Paying Brindell $2,000 Cash after Threat to Ruin his Business." "Tells Untermeyer $25,000 Bribe Ended Strike." "Levy Swears he gave Cash for Brindell." "Backer Faces Perjury Indictment." "Bidder Exposes Court House Deal, Tells of Rake-off." "Hanlein Reveals Combine among Cut Stone Contractors; Were to Divide Profits." "Seventy Indictments to be Asked in Building Scandal." "Rural Resorts Lure Building Trade Notables."

The editorials ran to the effect that the inquiry was revealing "surprising, astounding" conditions which had long been notorious. So the reporter came to the conclusion that regardless of what Mr. Untermeyer was endeavoring to do, the newspapers—and no doubt the public—were investigating men and organizations. For everywhere there was evidence that this inquiry must "pin it" on someone or some organization. Someone or some group must be to blame for this awful scandal.

Financial business may, e. g., issue a billion dollars of credit to hold goods in storage in order to keep the price up, and about all that is offered by those who complain is that "it is a pity." Such things are done under cover of averting a panic or under cover of whatever excuse may be trumped up to rationalize the situation, and thus such actions are made to pass as legitimate. Instances might be drawn from every field of production to illustrate how we accept without question—as perfectly legitimate—a systematic curtailment of goods production. In relation to actual needs there may be a shortage of coal, cotton, woolens, sugar, brick, cement. Prices are likely to be high under such conditions—so high that people may not buy what they need. But, when prices show signs of falling, what do we do? Close down the plant and issue credit to those who hold the goods in storage, to keep the market firm, of course.

After puzzling a long time over the matter, the reporter came to the conclusion that what was most needed after all, was an inquiry into that extensive, far-reaching, pervasive thing—our point of view. Why is our machinery of production gradually being made over into a gigantic Friction Machine? Why do we blame men if they cannot run it? In the meantime, it seems rather a pity that this investigation could not have been made by the building industry itself, instead of by grand juries and the wholly incompetent press. The Congress of the Building Industry is arriving on the scene a little late, but perhaps not too late.

So, if Mr. Untermeyer and the press fail so to conduct the hearing as to make it an inquiry into that point of view which assumes that men must be made to operate this Friction Machine anyway, then the reporter will use the testimony to this end and so report his findings.

FREDERICK L. ACKERMAN.

"The Truth Shall Make You Free"*

BY L. K. COMSTOCK.

THE Guildsmen of England have given the following definition of the meaning of the Guild:

"In industry those who work with their heads and those who work with their hands cooperate to produce the things which all of us need. If conflict and disunion take the place of cooperation, wealth production is hindered and everything the community requires is rendered less abundant and more costly. To secure this harmony of interest is the master problem of the modern industrial state."

This is a definition of the meaning of the English Guild in the building industry, but it can be made to do service as a definition of that kind of cooperation which is now making its appeal to our own building industry.

Old as the hills is the phrase "the truth shall make you free" and the 20th Century definition of freedom is the freedom to cooperate. If independence means anything, it means service and this is the great living fact—a fact which must be our guiding star. Never before have the problems of architects been so closely allied to and a part of the problems of the industry. You cannot segregate these problems and you must seek their solution with a clear understanding of their relation to the industry. To you as professional men, belongs the moral leadership of the industry and you must assert it, or else surrender. To those of us who possess something of the venturesomeness of Faith belongs the duty of extracting order out of the chaos of the building industry. There are many things to be considered, and much is to be done in bringing about an orderly arrangement in the industry, in order to narrow down the points of successful attack to the basic problems of land and credit. The control of these two factors over the industry falls within the domain of economics, but the orderly arrangement of the industry ought first to be considered in order to eliminate waste, the inevitable accompaniment of duplication of effort. Waste is an industrial crime and includes every form of expense not balanced by a unit of design or construction. The elimin-

*An address delivered at the meeting of the New York State Association of Architects in New York City, November 12, 1920.

ation of waste makes for industrial cohesion and harmony—or to put it otherwise, industrial cohesion and harmony will eliminate waste. The harmonic sense in our industry is absent, undeveloped.

Cohesion and harmony mean orderly arrangement, and orderly arrangement means peace and a condition of peace is favorable to a united industry, addressing itself to the fundamental economic problems of land and credit, problems which can be successfully sovled only by the industry. If solved elsewhere, the industry will not accept the solution, because it will not understand it. No industry will ever be well arranged and orderly, unless and until the functions of the various groups forming the industry are defined and proper bounds are placed by a code of practice, to which all can agree and with which the law can find no fault.

Roosevelt first conceived the idea of the Federal Trade Commission and he came to believe that in the increasing complexity of our industrial life the strict and inflexible rules of law and of the courts often worked hardship to legitimate business, and so, of course, ran counter to the general welfare and the public interest. When the Federal Trade Commission finally came into being, early in President Wilson's first term, it was called upon to administer the law creating it and this law contained a single sentence which seems to me to comprehend the ideals of American business and to be at once the Constitution, the Bill of Rights, and the Declaration of Independence of American business. These are the words:

> "Unfair methods of competition in commerce are hereby declared unlawful."

That is to say, business is to be fostered by law so long as it derives its strength and virtue from its own good conduct. Commercial cannibalism is henceforward to be looked upon with disfavor as long as the Federal Trade Commission properly interprets the law. A code of practice, dealing as it must with the spirit, purpose, and intention of the truly intelligent of the industry might perform a very great service in the regeneration of the industry—a service comparable in kind and degree to the Law Merchant. The Law Merchant in England and Europe was a law peculiar to itself. It was created, prior to Lord Mansfield's time, by merchants and administered by them, just as our stock exchange has its own rules and its own forms for enforcing them. This Law Merchant was based on the customs of merchants in conducting their business; and these customs in turn grew out of their business experience. It was justice as the merchant saw it; and, to his thinking, of a higher, finer and more sensitive quality than that known to statue law. The real purpose of a code is to introduce into our relations order and justice, and justice is merely moral equilibrium. To develop a moral equilibrium in industrial life is to satisfy an instinct and as long as the instinct remains, it will be more comfortable for the law to satisfy it in an orderly manner, than to leave people to themselves. The common law has ever striven to satisfy human instincts in an orderly manner according to the dictates of enlightened reason. And so, as the Law Merchant finally became embodied in the Common Law of England, so may a code of practice in the building industry, if truly founded on principles calculated to satisfy human instincts, be incorporated into law.

Each group in the industry must have respect for every other, not lip respect, not respect that begins and ends with words, but that kind of respect evidenced by a common acceptance of a forum where all things of common interest to the member groups of the industry may be discussed with reason and understanding; discussions of this sort have been exceedingly rare in the industry, but negotiations, with an eye on the main chance, have been common enough, and the results are everywhere apparent. Respect must be translated into "Cooperate and assist."

Respect must not be made to mean obeisance to magnitude or discrimination based on a supposed superiority of position, or fancied superior importance. Rather should respect be founded on ability and willingness to serve, and on ability to perform the duty imposed by group membership. Respect founded otherwise is illusive and cannot be made useful as a contribution to the grand idea of cooperation in the industry. There has been too much respect paid to persons and too much kow-towing to great names in the industry. Persons bearing great names are prone to remain aloof—and the unknown is always the magnificent to the ignorant and the fool, and it is really the veil that makes the prophet; when he takes off the veil, he is seen to be an impostor, the comman man. Service must be the true criterion of respect.

The one great interest we are all striving for is the regeneration of the industry and the enthronement of reason where prejudice now exists, and the substitution of harmony for discord. In bringing about this grand result, five groups are necessary—the Architect, Engineer, Contractor, Sub-contractor, and Labor. Each group has its own appointed task, and together they should move forward with the harmony and the rhythm of a great army under the leadership of a General Staff, which, composed of experts representing all the divisions, has worked out the grand strategy according to its understanding of the problems involved and the objective.

This is our common interest and you will at once perceive that the interest is complex and perhaps confused and full of cross currents of individual interest, apparently and probably at variance with the direction of the grand common purpose. In proportion as these cross currents of individual interest are allowed full play, the grand strategy of the industry is in danger of failing to reach its objective. Our common interest demands organization, organization demands direction, and direction demands conference, conference demands compromise, compromise demands self subordination, and self subordination demands courage of the highest order.

We are too apt, in spite of our willingness to regenerate the industry, to regard its present characteristics, and group isolation, as fixed and unalterable. Nothing is permanent and beyond alteration, and if proof of this is necessary, consider the Eighteenth and Nineteenth amendments to the Constitution of the United States.

You Architects form the professional wing of this great industrial army. Despite your professionalism and what some of you have regarded as a splendid isolation from commercialism—because you sell nothing but service—

nevertheless you are salesmen. The lawyer is a salesman, the minister is a salesman, everyone is a salesman whose name is not yet on a tombstone and who still has an idea worth passing along. Nothwithstanding your professional training and your broader culture, you need in common with all other groups in the industry a more vivid realization of the socializing forces at work and a more lively perception of the necessity of a code which shall link you up harmoniously with the other groups.

The orderly arrangement of our industry is not going to be based on logic but rather on experience, and experience teaches that the welfare of others is linked up with our own, no matter what we do. Organization of the industry into an industry organization is not impossible nor is it easy, nor will it be made easier by constantly thinking how hard it is. There will be little hope for the rescue of the industry, except through industry-organization.

Group organizations will not accomplish the result because they lack a common underlying fundamental philosophy. Architects, labor, contractors, engineers and sub-contractors must walk hand-in-hand as members of one great institution, whose duty it is to house mankind. We need to see this industry in perspective, if possible, and thereby discover our relation to it. It is a stupid thing to allow individual selfishness and group selfishness to project their shadows across the path of progress to prevent intelligent organization and coordination. Organization, that kind of organization which means coordination is a form of democracy, of intelligent democracy. We must not falter or grow discouraged if democracy's gait is unsteady, and at times seems to travel forward-backwards. A forum is needed where the problems of the industry can be discussed intelligently, dispassionately and authoritatively. Architects, contractors, engineers, sub-contractors, and labor must meet on the common ground of a single forum, and be prepared to discuss, yield, compromise—in other words, cooperate.

Because you are the professional wing of this industrial army of ours, to you belongs the leadership—you have not yet accepted the obligation. This duty devolves upon you because your non-commercial training has given you a sounder footing in the morals of industry, yet notwithstanding your advantages, you have so far put aside the obligation. The worth of men in the future will be measured wholly by the degree in which they can learn to work together for their mutual advancement.

Housing and Community Planning

JOHN IRWIN BRIGHT, *Associate Editor*

Report of the Housing Committee of the New York State Association of Architects

FOR two years the citzens of New York State have known that a housing emergency existed that could only be cured by the erection of a large number of new houses. During that period in the City of New York more dwelling places have been destroyed or converted to other use than have been erected. As a result the rents of the homes of a large proportion of the citizens have been raised beyond their means; thousands of families have been crowded into dark, unsanitary, decaying dwellings; actual disease and suffering and the likelihood of epidemic have been greatly increased. Similar conditions are threatened throughout the other cities of the State.

Committees and commissions without number have investigated and reported, but no effective action has been taken that would lead to the building of more houses. The legislature has killed the incentive of speculative endeavor; it has done nothing constructive. The machinery of speculative and competitive enterprise for the production of houses has broken down. Housing is not as profitable as other forms of business. So money is being lent for other buildings but not for housing, architects are planning other buildings, materials are being used by builders on other construction, but no houses are being erected. Workmen are employed on other types of building though they need homes. It is apparent that what was our only source of supply of housing in the past—speculative and competitive enterprise—has failed us in this emergency.

The system on which we have always depended has never produced sufficient or proper housing. Private enterprise built the types of house that sold most easily, no matter how poorly they served as dwellings. In New York City and Buffalo the minimum requirement of the law was the guide of the speculative builder—that and a plan bought at a bargain. In other cities in the State, he was free even of the restraint of any housing law. Most of the miles of New York City tenements as well as the cheaper houses of our smaller cities quite inadequately serve their purpose. They were built to sell not to house. The speculators that erected them were builders in name only—the sole skill they needed was that of borrowing money enough to pay for materials and labor.

At the present time it does not pay to build even the kind of house that the speculative builder formerly supplied the moderately well-to-do. For generations no one has built any homes for wage earners. They have been herded together in insufficient unwholesome, crowded, dark, left-over dwelling places. In New York City and Buffalo the Tenement House Law offered some protection to those who could afford new homes before the war. It did practically nothing to improve the living conditions of that half of the population who live in the tenements that were built more than twenty years ago. The poorer half of our fellow New Yorkers have never received enough pay to afford even the inadequate homes that were produced. They suffered in silence. As a result of the complete breakdown of the old system of housing supply, that articulate part of the population which has been accustomed to some protection for the health, safety, morals and happiness of their families are now suffering. So we all know that there is a housing problem.

The housing problem is not a new nor a temporary problem. Rent legislation will not solve it. Offers of bounties to the speculative builders can only at best serve to resurrect an incompetent system that in a wasteful

manner has given a small proportion of us quite unsatisfactory dwelling places. We can only hope to start the machinery of house production and to make it function for the good of the community by a change in our attitude in regard to the part that must be played by credit, materials, labor, land, planning and the State.

Credit

The control of credit is mainly in the hands of a small group of men. These heads of banks and insurance companies are responsible to their stock and bond holders to get the greatest possible profit on their investments. Housing is risky. It does not pay as well as other investments. And so they will not lend money for housing. But the credit which they lend is based on the savings of working men and women. These same people are congested in a manner which endangers health and happiness while their money is used to build theatres and garages.

There is no solution of the housing problem until the control of credit becomes a public function. Credit for housing must be used where it is most needed and when it is most needed. This will be possible when the State lends its money or credit for housing at a low rate of interest and for long terms, or when the people finance the building of their own homes by forming credit unions for that purpose.

Materials and Service

Material and building service, like money, are practically unattainable for housing. There has not been material or organized and trained labor enough for all purposes. Bricks have been used for loft-building—not for houses; glass needed for homes has gone into automobiles. There is reason to believe that the scarcity of materials has at least in part been created by curtailment of supply for the purpose of keeping prices high enough to pay large profits. It is apparent that a stronger control by the public of the manufacturing and distribution of essential material is needed. But this alone will not suffice. All unnecessary waste such as advertising, middle men and undue profit must go if we are to bring the cost of housing within the means of the more poorly paid half of the population.

Labor

Workers in the building trades are not giving their full effort. In part this is due to the disorganization that has resulted from the war. But there are more deep-seated causes. Artisans and laborers are discontented perhaps, because they felt that their efforts will not so much serve to promote their own interests as to enrich speculators and landlords who may afterwards squeeze them without mercy. If they felt that buildings were erected for the purpose of serving the need of the workers and the public in general instead of for profit, it might be more possible to get a full and enthusiastic day's work from workers.

Land

The cost of land alone according to the Housing Report of the Reconstruction Commission "is generally sufficient to prevent a large part of the workers from escaping from the slums." The value of land increases with the congestion of population. However, the individuals who are crowded together in our cities get none of the increase which results from their being crowded together in insufficient quarters. The land increment is wasted in land speculation; it is ultimately added to the cost of houses. A means must be found to preserve this unearned increment for the use of the community.

Planning

Even if there were available and cheap enough credit, land, material, and labor to build decent homes for all the housing problem could not be solved without a proper plan. Planning is the function of the architect. Much progress has been made during the last decade in the design of individual houses and groups of dwelling places. But the housing problem of our large cities cannot be solved by more houses. The unrestrained and unguided growth of New York shows the waste that comes from lack of foresight in planning our communities. There is not room for the population to live comfortably, decently or healthfully near their work. Transportation cannot solve the problem. The subways are inhumanly packed. There are not streets enough to care for our traffic. New York has grown without plans to the point where it is choking its own growth. More houses—without a proper plan for their location—can only lead to more congestion and more expensive homes. All effort will be wasted if we further increase the size of our unhealthy and inefficient great cities. We should plan to decentralize our population by developing smaller self-contained communities in which sufficient space is provided for agriculture, industry and organized social life. These should be small enough so that every family may have a garden and every worker may walk to and from his work; and large enough to allow efficient industrial organization and the social, educational, and cultural activities that make city life attractive. They should be surrounded by a belt of land that should be restricted for all time to farming and recreation.

The State

Governmental housing though necessary as a temporary means of averting a crisis, seems dangerous and unsafe as a permanent policy. Municipalities should be given whatever power is necessary, including that of building homes, to avert the dangers that are threatened by the present lack of sufficient houses. But the permanent function of the State in regard to housing should be that of education and of guidance of the various agencies that must need cooperation. For this purpose the State and local housing agencies to give us sufficient, adequate houses, properly placed in relation to work, recreation, and food supply, are badly needed.

The First Step

As a first step forward in the development of such a housing program we endorse the recommendations of the Reconstruction Commission of the State of New York:

1. That a law be enacted requiring the appointment of local housing boards in communities having a population of over 10,000 and the appointment of a central State housing agency for coordinating local effort.

2. That a constitutional amendment be enacted per-

mitting extension of state credit on a large scale and at low rates to aid in the construction of moderate priced homes.

3. That an enabling act be passed permitting cities to acquire, and hold or let, adjoining vacant lands and if necessary to carry on housing.

J. A. Hopkins
Andrew Thomas
Frederick L. Ackerman
Clarence S. Stein
*Albert S. Brockway

*Mr. Brockway dissented from the conclusions of the committee.

Comment on the Minnesota Chapter's Report on the Crisis in the Building Industry

In reply to the questionnaire sent out by the Senate Committee on Reconstruction, the Minnesota Chapter of the Institute submitted an interesting reply, which seems to invite comment. After a few introductory paragraphs the report goes on to say: (The questions asked by the Senate Committee are in italics.)

Information as to the shortage of housing and industrial construction. "The shortage of housing of all kinds in Minneapolis is no doubt typical of conditions to be found in all parts of the Chapter's territory and the relative need for additional buildings can be appreciated by the following information in regard to Minneapolis:

"In 1914 there were constructed accommodations for 2,832 families; in 1915—4,554; in 1916—4,913; in 1917—1,783; in 1918—824; in 1919—3,021; and in the first six months of 1920—1,035. There is a shortage at the present time of accommodations for about 4,200 families with an additional shortage of industrial and business accommodations for about 380 firms."

Whether the shortage is increasing or decreasing. "The shortage of housing and industrial construction is decreasing."

The effect of the shortage on industry and public welfare. "The effect of the shortage is the increasing of rents from sixty to one hundred per cent, discouraging alike to families and to business enterprises, causing crowding in living quarters, undermining of the morals of community life, and is discouraging many citizens as to the future."

The remedial measures which have been taken affecting the various localities or industries. "As a remedial measure to assist the building of homes, especially those of smaller type, a Minneapolis Home Financing Corporation was organized with a captial of $500,000 which advances the needed capital for home construction up to 80% of the cost of the building at 6% interest, providing the owner has a building lot clear of debt and is able to finance the balance of cost of building, 20%.

"The Northwest Terminal Corporation, of Minneapolis, with a capital of $3,000,000 for developing an industrial tract of 250 acres, is providing facilities for the acquirement of industrial building lots on easy terms. It is erecting a modern and commodious terminal for the accommodation of various industries seeking new location in Minneapolis, as well as industries established here seeking larger quarters and better transportation facilities."

The Chapter's views as to the merits of such measures. "While the Northwestern Terminal Corporation is rendering efficient assistance toward relieving the shortage in the industrial expansion, the assistance rendered by the Home Financing Corporation, on account of its small capital and difficulty in obtaining assistance from the banks, is negligible in relieving the great need of home construction."

The Chapter's opinion as to the necessity of Federal action in the present emergency. "Realizing that the interest of the American nations is best served through individual efforts, thus insuring an independent spirit and safeguarding the true democratic ideas of the nation, the Minnesota Chapter of the A. I. A. does not believe in paternalism, but it does demand from the Government the administration of the affairs of the nation along modern, efficient business lines.

"While the establishment of Federal Home Loan Banks is in many ways similar to the Federal Farm Land Banks, and as suggested from many sources would possibly assist the home builders in obtaining the needed funds for home construction on long, easy terms, the Chapter believes that a scientific revision of the present Federal tax system as well as the burdensome state and community tax system would be a step in the right direction. For example, the exemption from Federal taxes of at least $40,000 mortgages on homes, in the hands of any one person or corporation, would greatly stimulate the provision of funds for home building. The further exemption of Federal income taxes of $5,000 to these tax papers who will build new homes in addition to state and local tax exemptions of $3,000 on each dwelling for a period of five years from the time of building, will be encouraging to the building and owning of homes.

"We believe the shortage of housing is due to many factors of which the war is but one; it is an indication of evils the results of which have been cumulative. The natural right to possess and enjoy every necessary thing that enters into the living of the population, whether it be food, clothing or habitation, is something that the law does not properly safeguard.

"There must eventually be developed a comprehensive plan for the conduct of business in its relation to the necessities of human existence. Conveniences like gas and street cars are restricted in the rates to be charged; no protection, however, exists which has for its object the fostering of family life. We believe the strength of the Nation depends on proper living conditions; in fact, we believe proper living conditions are an inherent right and that the time should be made to come quickly when such conditions will be possible and with a similar restriction on inflated costs and other forms of greed that are in force in relation to public utilities. The solution of the problem rests on much more important factors than money. Constructive ability can be had and utilized that will bring about, in the housing difficulties of the people, results comparable to those in finance that have been the outcome of the Federal Reserve Act."

There are several interesting features in this recital. We are first assured by the report that the situation is growing less tense, and then shocked by the alarming statement that the housing shortage is having for its effect

the undermining of the "morals of community life" and that the public is discouraged at the outlook. The final note is evidently meant to carry and when we are told that their housing shortage which, expressed in terms of money, amounts to at least $25,000,000 is being ministered to by a corporation with a capital of $500,000 whilst at the same time a company with a working fund of $3,000,000 is assisting in the building up of the local industrial requirements we need seek no further for the cause of the display of pessimism.

Having thus presented the situation the Chapter goes on record as opposed to "paternalism" and as in favor of "modern efficient business." Agreed as to paternalism, but what is the meaning of the phrase "modern efficient business." More than by any other one thing modern life is governed by business for profit and as this theory gains in force and general acceptance the housing scarcity develops. Charted, their lines would, in a rough way, be parallel. This is a cold hard fact that can not be evaded by any emotional outbursts. Empirical methods have taught us that good housing has a beneficial effect on business and that good business has an injurious effect on housing. Both reactions are primary but when business elevates the standard of housing, as upon occasion it does, it is pursuing a course quite incidental to its own main interest. In the face of this the Minnesota Chapter seems to demand as a cure an extra dose of the toxin which is poisoning us.

When the Chapter suggests that dwellings should be exempted from taxation it is proposing in effect a subsidy. At least under the dogma of equal taxation it is a subsidy. Let us review England's recent experiment in paternalism. In order to stimulate the building of dwellings she offered first, a subvention to be raised out of taxation with the State assuming all the loss that could not be written off from the rent obtainable; second, a direct cash subsidy of 160 Pounds maximum, and then she increased the subsidy to 260 Pounds maximum, to any one who will build a house of a certain kind and type. There has been practically no response and there is no reason to expect that tax exemption will meet with any more success. Both schemes are subsidies in that the government is asked to appropriate directly or indirectly sums of money to the building of a house. Why lift up hands in horror at the word and wink at the deed?

I confess I can not follow the argument of the last two paragraphs. In view of the economic principles to which the Minnesota Chapter declares allegiance it is not possible that they really wish the law to recognize as a natural right the "possession of every necessary thing that enters into the living of the population." In spite of the fact that there is a certain indefiniteness in its language the proposal goes to the extreme limit of socialistic theory. I wonder if this thing has occurred to the Minnesota Chapter.

In the last paragraph it is inferentially proposed that the price of those things fostering family life be regulated by law. Now this goes still a little further and opens unexplored political vistas. The socialists themselves have never thought quite so far. Naturally the only method of carrying into effect such advanced views is the complete socialization of the state for in no other way, conceivable to me, could such an end be attained. Of course the declaration in favor of 19th century individualism with which the paper commences and the unreserved acceptance of advanced socialism with which it ends are rather difficult to reconcile and the explanation for the seeming inconsistency can only be that as the author wrote he converted himself—a very common experience with all thinking writers. The Minnesota Chapter is more fearful of words than of ideas.

John Irwin Bright.

News Notes

LEGISLATION requiring all building plans to be signed by a registered architect or engineer is proposed by the Legislative Committee of the Oregon Chapter, which reported that the recent collapse of a building emphasized the necessity for such a requirement.

CRAFTSMEN'S GUILDS are making progress in Oregon according to a committee report at the last Chapter meeting when it was stated that a joint meeting of all those interested would be held in the near future to consider definite proposals.

PUBLIC INFORMATION has been discussed at all recent Institute conventions. In this day of organized propaganda the problem of diffusing valuable public information is more difficult than ever. The Secretary of the Institute Committee has issued a circular letter outlining a very comprehensive program in which he points out the kind and quantity of material required for this work. Only those who have had experience realize the enormity of the task involved in conducting a sustained effort of this kind over any period of time. The program to which we have referred proposes a kind of Chapter cooperation which ought to make an appeal. If work of this kind is done by voluntary effort that effort will have to come from inside the profession. The only other way to accomplish the purpose is to spend a large sum of money—the method adopted by business concerns or by organizations that seek a business result.

STUDYING the function of a City Architect and outlining a program for his selection has been the task assigned to a special committee of three by the New York Chapter.

CHAPTER MEETINGS and how to make them interesting is a question agitating the minds of a good many Chapter officers. In New York City it has been suggested that luncheon meetings be substituted for the regular monthly evening meetings; that such meetings be called only when necessary to deal with a local situation or when a subject of wide interest was available. At the last discussion on this question it was pointed out that it would be better to have meetings only when a subject of interest was at stake rather than to hold regular meetings and try to find how to make them interesting. Perhaps these suggestions contain a good deal of food for reflection.

INTEREST in the architectural exhibition held in connection with the last Convention of the Institute at Washington was not by any means confined to the limits of the United States. It so happened that Messieurs Greber and Plumet, two eminent Parisian architects, viewed the exhibition and were so impressed with their visit that they gave a glowing account of it on their return

to Paris. As a result the Societe des Artistes Francais has invited the architects of the United States, through the American Institute of Architects, to prepare an American architectural exhibit for the Paris Salon of 1921. The Board of Directors of the Institute will administer the details of the shipment, the cost of which will be defrayed by the French Government, as far as ocean transport is concerned. Shipment to New York, boxing, cartage, and insurance will be pro rated among the exhibitors. Particulars may be obtained from Mr. Julian Clarence Levi, Secretary of the Committee in charge, 105 West Fortieth Street, New York City.

SHORTAGE of skilled workers for house building, is in the opinion of Premier Lloyd George, responsible for delay in carrying out the British Government's programs. To remedy the situation he proposes to dilute the building trades unions with unskilled workers of which he points out there are no less than 60,000 ex-service men available. The unions protest against this action claiming in the first place that the shortage does not exist but that far too many workmen are employed for "luxury building" to make it possible for house building to go on; second, that when the housing rush is over the present skilled workers in the building trade will be left without employment. From knowledge at hand, it would appear that house building in England is being sacrificed for more profitable structural undertakings.

SPEAKING in Parliament in October the Prime Minister stated that England at present is faced with a shortage of 500,000 houses and that it needs an additional 100,000 per annum to take care of normal increase in population. At the same time Dr. Addison, Minister of Health, stated that there had been completed 7,000 houses and that 50,000 more were in various stages of construction while contracts had been signed and work was in progress on the site of about 120,000 houses. This represents however the accomplishment of nearly two years.

THOUSANDS of mummified bodies of the sacred ibis have recently been discovered under the famous ruined temple at Deir Medineh, it is announced by M. Lacau, the French savant. Each bird was in an elaborately decorated vase of earthenware, and surrounded with hundreds of thousands of papyri. The subjects of these are of the widest character, and the work of deciphering them will take years. One of those charged with this work, called it "The waste basket of ancient Egypt."

RECOMMENDATIONS on the method of opening bids was the subject of a lengthy report by the committee on Professional Practice of the Washington State Vhapter. The report was accepted and the members of the Chapter were notified of the committee's recommendations which were as follows:

"The Committee on Practice therefore advises that bids be opened by the architect in conjunction with his client; if advisable, that they be held by the architect for a period of 48 hours, pending the decision of whether any further figuring will be required; should there be none, that the bids then be made public, whether the contract be awarded or not, preferably by the architect mailing to each contractor who has submitted a bid, a list of the contrac tors estimating, with their bids."

STATE and Municipal legislation "designed to assess upon individual firms or corporations the cost of extinguishing or attempting to extinguish all fires occuring on their premises, when such fires are the result of failure to comply with state and municipal regulations," was approved by the Washington State Chapter on recommendation of the Chapter Committee on Fire Prevention.

Institute Business

Important Announcement on Registration Laws

The subject of joint registration laws for architects and engineers was discussed at the convention in Nashville in 1919, when the Institute definitely recorded itself as not in favor of such laws. At the 1920 Convention in Washington the subject was dealt with in the report of the Committee on Engineering Cooperation which reported that "cooperation between architects and engineers was desirable in formulating basic laws involving the registration or licensing of architects and engineers. That does not commit either the architects or the engineers to a joint registration board or a joint law, but it does say that they should cooperate. The Committee asks for an extension of time in which to make a definite recommendation as to the method of that cooperation." The report was adopted with power to the Board.

The work of the Committee on Engineering Cooperation was continued and at the November meeting of the Board it presented its recommendations which were "that the many points of contact between the architectural and engineering professions make it desirable for them to favor the passage of joint registration laws." The report of the Committee goes on to suggest methods of administration, protection of title, and examination.

The recommendations of the Committee seem to be contrary to the position taken by the Institute in Convention assembled.

Coincidently with the submission of this report to the Board at its meeting in St. Louis on November 19–20, there was held the meeting of the Association of Architectural Registration Boards, attended by 36 delegates from 25 states. Of 20 states having registration laws, 18 were represented and an expression of eagerness to cooperate with the Association was received from the other two states. The Association recorded its unanimous opinion that joint registration laws for architects and engineers were not desirable, thereby supporting the action of the Institute as it stands recorded at present.

Accompanying the report to the Board of the Committee on Engineering Cooperation there was submitted the proposed Joint Registration Law. The Board, although having power to affirm this law, deemed it wise to refer it to the Institute Committee on Registration for study and report at the next Board meeting.

Unfortunately, the report of the Committee on Engineering Cooperation was published, in one of the architectural publications, previous to the submission of the report to the Board, and was accompanied by comment calculated to give the impression that the report of an Institute Committee is the same as an Institute action. As a consequence there have been many inquiries from architects throughout the country for an explanation of this very misleading occurrence.

In order that the actual position of the Institute might be made public without delay the Board of Directors sent the following telegram to the Engineering Council:

"The American Institute of Architects in past Conventions is on record cordially favoring cooperation with engineering societies, but opposing joint legislation for state registration. The National Council of Architectural Registration Boards now in session, has by unanimous vote expressed its opinion that joint registration boards are not desirable for the best interests of either profession. The joint registration bill just received by the Board of Directors will, however, receive the most careful consideration and action at next Convention. In the meantime, where simultaneous legislation has already been initiated, Institute members will endeavor to obtain laws which will secure to each profession independent action and control of examination and issuance of registration certificates. The Institute regrets premature publication in architectural press of joint committee report before it was received by the directors and trusts you will not assume the report of a committee as the action of the Institute."

The following are notes from the meeting of the Board of Directors held at St. Louis on November 19-20, only a brief account of which is possible in this issue, owing to the lateness of the date:

The Convention of 1921

The Fifty-fourth Annual Convention of the Institute will be held in Washington on May 11, 12, 13, 1921.

Fellowships and Honorary Membership

As the Committee on Fellowships has not concluded its work of studying the question of Fellowships, and of the methods of nomination thereto, the Jury of Fellows resolved that there should be no nominations to Fellowship at the Fifty-fourth Convention.

Architectural Exhibition

The Board resolved, that in view of the great success of the architectural exhibition in connection with the last convention, and the general appreciation so widely expressed, an exhibition should again be held at Washington, next May. (It will be remembered that the last Convention requested the Board to make the exhibition a permanent feature of all future Conventions).

A Gift of $25,000 to the Institute for Educational Purposes

The Treasurer announced to the Board that a friend of the Institute, who for the present desires to remain anonymous, has generously offered the Institute the sum Twenty-Five Thousand Dollars, the income thereof to be used for the purpose of architectural education, in connection preferably with the American Academy in Rome. The Board requested the Treasurer to communicate to the donor an expression of the grateful appreciation of the Institute at this signal recognition of the art of architecture—a recognition which most assuredly will be shared by the whole profession of the United States. The details of administration will be announced later.

New Members Elected

Name	*Chapter*
Riggin Buckler	Baltimore
Robert A. Greenfield	Buffalo
Edmund Hermann	Cleveland
Henrik Wallin	Georgia
Rudolph S. Adler	Georgia
Walker D. Willis	Georgia
Fermor Spencer Cannon	Illinois
Ralph C. Harris	Illinois
F. Julius Dreyfous	Louisiana
Frank A. Abrahamson	Minnesota
Edward T. Fallows	Minnesota
Stirling Horner	Minnesota
Frederick C. Klawiter	Minnesota
Clyde J. Schuemacher	Minnesota
Fred A. Slifer	Minnesota
F. A. Brinkman	Minnesota
Olaf Thorshov	Minnesota
Herbert F. J. Bartlett	New Jersey
Kenneth W. Dalzell	New Jersey
Charles H. Higgins	New York
James C. Mackenzie, Jr.	New York
Henry Oothout Milliken	New York
Prentice Sanger	New York
Mott B. Schmidt	New York
Richmond Harold Shreve	New York
Clarence S. Stein	New York
W. J. H. Houch	Philadelphia
Ellery K. Taylor	Philadelphia
Alfred F. Shurrocks	Rhode Island
Frank Cann	St. Louis
Roy Seldon C. Price	St. Louis
Edwin Joseph Symmes	San Francisco
William Templeton Johnson	Southern California
Richard S. Requa	Southern California
Edward C. Taylor	Southern California
William Horace Austin	Southern California
James J. Broadwell	Tennessee
Charles A. Ferguson	Tennessee
George Mahan, Jr.	Tennessee
R. J. Regan	Tennessee
Fred C. Stone	Tennessee
John J. Weller, Jr.	Tennessee
Louis U. Bruyere	Toledo
Charles A. Langdon	Toledo
Charles J. Calrow	Virginia
Wickham Custis Taylor	Virginia
Edmund Bradford Tazewell	Virginia
Harold Holmes Wrenn	Virginia
Finley F. Ferguson	Virginia
Merrill C. Lee	Virginia
John K. Peebles	Virginia
James E. Cooper	Washington, D. C.
Charles Allen Merriam	Washington State
Ambrose J. Russell	Washington State
Frederick Westcott	Washington State
Harry W. Bogner	Wisconsin
Leon M. Gurda	Wisconsin
Charles L. Lesser	Wisconsin

Structural Service Department

SULLIVAN W. JONES, *Associate Editor*
LEROY E. KERN, *Assistant*

In connection with professional societies, organized bodies, and the following Committees of the Institute, working toward improvements in building materials and methods, and higher ideals in the sheltering of humanity:

BASIC BUILDING CODE, CONTRACTS, FIRE-PREVENTION, STRUCTURAL SERVICE

The Experience Pool

UNDER this caption, the Committee on Structural Service will record from time to time, statements of experience received in connection with investigations conducted for the purpose of answering inquiries addressed to the Committee.

Concrete Vats for Tanneries. (35123)—To secure authoritative information for use in answering an inquiry on the treatment of concrete vats for tanneries, the Structural Service Committee communicated with a large number of laboratories, manufacturers and tanneries. No disinterested technical laboratory could be found that had conducted any research to determine the action of various tanning liquors on concrete. Practically all manufacturers of integral compounds and protective coatings claimed efficiency for their products but presented little authoritative data to substantiate their claims. The following is a digest of the replies received that contained data of value or interest:

Replies from Manufacturers. (a) The Gardner-Barada Chemical Company states that it has tested fluo-silicates, insoluble soaps, oil films, asphaltic and coal tar bases and found them all open to objection, in that they are not fool proof. They are now experimenting along a different line; *e.g.*, they are attempting to impregnate the concrete surface to a reasonable depth with an acid resisting material which, when applied to excess, will form a waterproof coating.

(b) L. Sonneborn & Sons claim that tests conducted in their own laboratory show that concrete treated with Lapidolith is not affected by Oleic Acid, whereas considerable destructive action was observed on untreated specimens.

(c) The Barrett Company recommends an application of Coal-tar pitch. They claim that the same result may be obtained by the use of their Eternium paint.

(d) The General Plasters Supply Co. state that the only acid proof coating that they have found to be satisfactory is a mixture of asphaltum and pitch.

(e) The Portland Cement Association describes a series of tests on the treatment of concrete vats as follows:

"Dr. Cushman, Director of the Institute of Industrial Research, Washington, D. C. carried on a number of experiments for the Association, which included some investigations into the effect of tannin liquors on concrete. The material which he used was, we understand, practically 100 per cent que-bracho extract. Small tanks were made of a 1:2:4 concrete, several of which were treated with special coatings—others untreated. The plain concrete tanks were fully as satisfactory as the treated ones. During these tests for the first three months some slight action upon the concrete was caused by the tannin solution, but this was very slight and soon ceased, the tanks having in fact become tanned."

"This action of the tannin liquors upon the cement, though slight, is of such a nature as to produce dark coloring upon the leather tanned in new tanks. For this reason it is recommended that a new concrete tank be well tanned with the liquor before the leather goods are introduced. After each refilling, a sludge was deposited in the bottom of the tanks, but similar deposit also formed in the glass containers. Both are due to a settlement of heavy organic matter. It is safe to state that at the present time plain portland cement concrete is suitable for the storage of tannic solutions."

It also appears from the investigations of the Portland Cement Association that free lime in concrete used for tanning vats is detrimental. Therefore no lime should be used in the mix, the water content kept as low as possible, the use of limestone avoided; the use of gravel is favored. A dense, well graded mix, at least 1:2:4 should be used. They recommend that for normal solutions the interior of the tank be given a brush coat of neat portland cement or plastered with 1:2 portland cement mortar, and for concentrated solutions the interior surface of the tank be coated with tar, asphalt or other bituminous acid resisting paint.

Replies from Tanneries. (a) Kistler, Lesh & Co., Morgantown, N. C., state that they use concrete tanks for storage purposes and for lime and soak vats. Mix, 1:2:3. Aggregate, crushed granite. Hydrated lime was added to the cement and no waterproofing or hardening treatment. The results have been satisfactory.

(b) F. C. McCordick, St. Catharines, Ontario, state that their concrete tanks have been satisfactory except those used for pure mineral solutions. These they state should be coated with asphalt pitch. They used a concrete composed of one part portland cement to six parts gravel. ("Gravel" evidently means sand and gravel, bank run.)

(c) The Ashland Leather Co., Ashland, Ky., state that they are using concrete vats in their beam house and for water soaks, but not for tanning. No waterproofing or hardening compound was used. Results have been satisfactory.

(d) Wm. Taylor, Parry Sound, Ont., states that he is using concrete vats for tanning with satisfactory results. The concrete used was mixed one part portland cement to five parts of gravel. The gravel was about 50% small stone and 50% sharp sand. A brush coat of neat cement was applied to the walls after the forms were removed.

Conclusion.—From the data received, it appears:

(a) That untreated concrete vats have in many instances given satisfactory service.

(b) That no lime should be used in the mix and that the water content be kept as low as possible.

(c) That gravel and crushed granite are preferable to limestone.

(d) That a dense, well graded mix, at least 1:2:4, should be used.

(e) That for concentrated solutions the interior surface of the tank should be coated with tar, asphalt or other acid resisting paint.

Reviews

Insulation of Warm Air Pipes and Ducts. (30b2)—The Engineering Experiment Station of the University of Illinois is conducting in cooperation with the National Warm-Air Heating and Ventilating Association, an investigation having for its object the determination of the efficiencies and capacities of warm air furnaces and a study of the proper conditions of installation and operation, so that furnaces may be accurately rated and properly selected for the requirements of actual service. Several publications dealing with the investigation have been issued.

In Bulletin No. 117 "*Emissivity of Heat from Various Surfaces*" by V. S. Day is given the results of comparative tests on covered and uncovered sheet metal surfaces as commonly used in connection with warm-air furnace installations. The results of these tests seem to indicate the advisability of a radical revision of some of the generally accepted methods for the insulation of warm air pipes and ducts. The following significant results as applied to warm-air furnace heating are deserving of especial emphasis.

1. The use of thin sheets of asbestos paper on bright tin heat pipes results in a waste of heat.
2. Uncovered bright tin pipes are more efficient carriers of heated air than asbestos paper-covered bright tin pipes.
3. This fact is true regardless of the degree of brightness of the tin surface.
4. No small number of applications of asbestos paper will suffice as an insulator. Eight thicknesses of 12 pound asbestos paper are necessary to make the pipe as efficient as a bright tin uncovered pipe.
5. The accumulation of dust and dirt on the pipes does not greatly alter the amount of the loss.
6. Galvanized iron is practically as efficient as bright tin.
7. The painting of both covered and uncovered pipes results in a loss of efficiency, especially when applied to uncovered pipes.
8. The fact that pipes are partly protected from convection currents of air by joists and studding does not greatly affect the loss.
9. Double wall tin pipes are efficient.
10. Air-cell asbestos coverings are efficient.

The following table gives the relative efficiency of the various materials and methods of construction tested. I C bright tin, uncovered, is used as a basis of comparison and the various items are listed in the order of their efficiency.

	(*Relative efficiency Per cent.*)
1. Galvanized iron with 1¼″ asbestos-cell blocks covered with ½″ asbestos cement and a cheesecloth wrapper	392.0
2. I C tin with 3 thicknesses of air-cell asbestos and 1 thickness of 10 pound asbestos paper	226.0
3. Galvanized iron, No. 28 U. S. S. gage with 3 thicknesses of air-cell asbestos and 1 of 12 pound paper	222.0
4. I C tin with I X tin casing surrounding, with 5/16″ air-space. No vent holes	216.0
5. I C tin with I X tin casing surrounding, with 5/16″ air-space and with six ½″ vent holes cut in the casing	183.0
6. I C tin with 1 thickness of air-cell asbestos and 1 thickness of 10 pound asbestos paper	147.0
7. I C tin with I X tin casing surrounding, with 5/16″ space between filled with dry J. M. asbestos cement	142.0
8. I C tin with 8 thicknesses of 12 pound asbestos paper	101.5
9. I C TIN, NOT INSULATED, BRIGHT	100.0
10. I C tin with 7 thicknesses of 12 pound asbestos paper	97.0
11. Galvanized iron, No. 28 U. S. S. gage	96.0
12. I C tin nickel plated and polished	96.0
13. I C tin with 6 thicknesses of 12 pound asbestos paper	92.0
14. I C tin previously painted but paint removed, and a housing of compo-board construction, to represent joists, built around same. Housing 8″ deep by 14″ wide by 26″ long	89.5
15. I C tin, not insulated, bright, with ash dust sifted on 1/16″ deep	89.0
16. I C tin with 5 thicknesses of 12 pound asbestos paper	89.0
17. Same as No. 14 with housing removed	84.3
18. I C tin coated with Bakelite lacquer	81.5
19. I C tin with 4 thicknesses of 12 pound asbestos paper	76.5
20. I C tin with 3 thicknesses of 12 pound asbestos paper	71.5
21. I C tin with 1 thickness of 10 pound asbestos paper and a surface of glaze finish printers' proofing paper	71.0
22. I C tin with 2 thicknesses of 12 pound asbestos paper with ash dust sifted on 1/16″ deep	70.5
23. I C tin with 2 thicknesses of 12 pound asbestos paper	68.1
24. I C tin with 1 thickness of asbestos paper covered with a firm coating of white calcimine	62.5
25. I C tin with 1 thickness of 10 pound asbestos paper	61.5
26. Same as No. 24 with lampblack calcimine on the surface used in that test	60.5
27. I C tin with 1 thickness of asbestos paper and 2 applications of gray paint (of zinc, linseed oil and lithopone composition)	59.5
28. I C tin with two applications of gray paint (of zinc, linseed oil and lithopone composition)	57.5
29. Black iron, No. 29 U. S. S. gage, very rusty	54.0

The National Fire Protection Association in reply to an inquiry from the Structural Service Committee relative to the precautions necessary to be taken in the event that the covering of warm air pipes with asbestos paper be discontinued, state:

1. That the N. F. P. A. have never advocated the use of thin asbestos paper.
2. That the protection of adjacent combustible material from the heat of hot air pipes is best accomplished by that same protection which will most effectively insulate pipes.
3. Double walled tin pipes with one-half inch air space between the two walls have been recommended as affording the best fire protection.
4. If double walled pipe is not used a corrugated or cellular asbestos, at least one-half inch thick, should be used.
5. Where horizontal hot air furnace pipes are placed more than six inches below wooden floor beams no special protection will be required in ordinary cases.
6. If the distance is less than six inches and more than three inches the woodwork should be protected by tin applied directly to wood.
7. The pipes should not run closer than three inches to the floor beams.
8. Where passing through combustible partitions or floors there should be a double pipe with at least one inch air space.
9. Vertical pipes in studded partitions should be double tin with one-half inch air space between.
10. The outer pipe should not be within one inch of wooden studding.
11. Metal lath should be used to cover the portion of the partition in which the hot air pipe is located.

Tests of Aged Cements in Concrete Mixtures. (3a1)—The Bureau of Standards, in Technical News Bulletin No. 40, publishes the following report of tests to

determine the strength of concrete made from cement which had been in storage about a year and a half.

"The cement as received was first put through a sieving process to remove the lumps. The cement after sieving, as well as the crushed lumps were then made into separate concretes which were compared with concrete made from cement recently purchased in the local market. It was found that a 1:1¼:2½ mix of the old cement would give approximately the same strength as a 1:2:4 mix of fresh cement, and it was recommended that the lumps be sieved out of the old cement before using. Similar tests were conducted on aged cements submitted by the U. S. Engineer Office at Vicksburg, Miss. The results indicated that a 1:2¼:4½ mix of the aged cements gave approximately the same strength as a 1:3:6 mix of fresh cement."

Lime. (3c)—The Bureau of Standards has issued the second edition of Circular No. 30; "Lime: Its Properties and Uses." The following is an abstract of the information contained in this circular which relates to the manufacture, kinds, and architectural uses of lime. The circular also includes discussions on the uses of lime in chemical industries and on the testing of limes, but they are not covered in the abstract.

Definitions.—LIME is merely limestone from which the carbon dioxide has been removed by heat. GROUND LIME is lump lime which has been ground and screened, generally through a 60-mesh screen. HYDRATED LIME of commerce is a fine, dry powder prepared by adding just sufficient water to quick lime to insure complete slaking.

Standard Containers.—Lump lime is shipped in bulk or in wooden barrels holding 180 or 280 pounds net. Ground lime is shipped in air tight iron casks. Hydrated lime is put on the market in paper sacks of 50 pounds each.

Classification.—The wide variation in the chemical and physical properties of limestone necessitates a similarly great difference in the kinds of lime. The system of classification adopted by the American Society for Testing Materials is as follows:

High calcium; not less than 90% calcium oxide.

Calcium; not less than 85% nor more than 90% calcium oxide.

Magnesian; not less than 10% nor more than 25% magnesium oxide.

High magnesian; not less than 25% magnesium oxide.

The total amount of impurities (exclusive of carbon dioxide) shall not be more than 5% in selected lime, or 7½% in run-of-kiln lime.

Burning.—Both manufacturer and consumer are interested in having the lime burned at the proper temperature. This is recognized in all specifications by the statement that the lime must be well burned. A closer definition of this property may be based on the fact that both underburned lime and overburned lime will slake more slowly than that which is properly burned. The rate of hydration, therefore, indicates the burning temperature.

Underburned lime is produced when the temperature of burning is too low or the time too short. The calcium carbonate which is then retained in the lime acts merely as an inert filler. It also does not contain so much of the active calcium oxide and its reactions will consequently be much less.

Overburned lime is produced when the temperature of burning is too high or the time too long. It will react similarly to lime burned in the proper manner, except that the reactions will take place much more slowly. Especial care should be taken to insure its complete hydration before using. Some of the compounds formed by the impurities in the lime hydrate very slowly, so that it is hardly practical to use an impure, overburned lime for the final coat of plastering.

The temperature at which lime is burned may vary from about 900 degrees C. to 1200 degrees C., or a little higher if the stone is very pure. Under ordinary conditions Calcium Carbonate (limestone) will break up at 898 degrees C. At about 1200 degrees C., other impurities form chemical combinations with the calcium oxide. This results in incipient vitrification on the outside of the lump, so that when water is added it can not penetrate so readily. However, the activity of the impurities becomes noticeable much below 1200 degrees C., and therefore the lower the temperature at which the lime is burned the better will be its quality. This is the reason why wood-burned lime generally commands a higher price than that burned with coal.

Slaking.—To prepare lime for use in building or plastering operations, it must first be slaked. This is accomplished merely by the addition of water, but there are several points to be noted in this connection. Calcium oxide generates so much heat during slaking that unless this heat is removed or some means provided to prevent too great a rise in temperature the lime will burn. Burned lime will not slake and acts very similarly to ground limestone. If every particle of lime is in intimate contact with plenty of water, this water will absorb the heat generated and prevent burning. However the use of too much water is apt to be detrimental to the quality of the product. By keeping the temperature of the mass too low, the excess water slows down the reaction and this through some unknown mechanism, impairs the plasticity of the product. This phenomena is known as "drowning."

The slaking of quick lime should always be done by a skilled workman, preferably one who has had experience with the particular kind of lime he is called upon to slake. When lime is exposed to the air it absorbs carbon dioxide and water. This air slaking is accompanied by the generation of heat. Completely air-slaked lime is practically identical with finely ground limestone, and therefore has no value, as lime, for building or chemical purposes.

Setting—The setting of lime is caused first by the evaporation of excess water, and finally by the absorption of carbon dioxide, causing the lime to revert into calcium carbonate. Therefore, setting will take place more rapidly if the amount of carbon dioxide in the air is increased, as, for example, by the use of salamanders. Dry carbon dioxide will not react on dry slaked lime, so that it is necessary for the air to be moist. Indeed, it is advisable to soak the mortar thoroughly at frequent intervals during the setting process.

Comparison of Magnesian (Dolomite) and High Calcium Lime.—Whether dolomite or a high calcium lime is best

suited for building purposes, has long been an important question for both lime manufacturers and builders. In considering the question the following points of difference between the two limes should be noted, although, due to different porosities of the stone or to different conditions of burning, the properties of each are subject to radical modifications.

High-calcium lime slakes quickly and generates a large amount of heat, hence it is apt to burn if not watched carefully. A magnesian lime slakes slowly, generates comparatively little heat, and is never in danger of burning. Care should be taken to prevent its "drowning."

High-calcium lime increases in volume more than a magnesian lime, and requires more water, both for the hydration and the formation of a paste and carries more sand.

Magnesian mortars generally work more smoothly and freely under the trowel, while high-calcium mortars are apt to be sticky and work "short."

In the process of setting a high-calcium lime shrinks noticeably, while the change in volume of a magnesian lime is much less.

High-calcium limes set more quickly than magnesian limes.

Magnesian limes are generally more nearly white than high-calcium limes.

As to the actual strength of the two mortars, recent tests conducted by the Bureau of Standards indicate that mortars made of dolomitic (magnesian) limes are stronger than those made of high-calcium limes. The strength of a lime mortar, however, depends on a variety of conditions, chief among which is the method of preparing it.

Masons generally prefer magnesian lime because it works more smoothly and sets more slowly. This permits of a larger batch of mortar being made up and gives the mason plenty of time to spread it. The contractor prefers a quick slaking lime so that the job can be finished as soon as possible. The fact that a high-calcium lime gives a larger volume of putty and carries more sand is also of advantage to him.

The usefulness of lime as a building agent probably depends more on the method in which it is handled than on its content of magnesium. Aside from the large cities, where machine mixed mortar can be had, the slaking of lime is gneerally left to unskilled labor. In such cases the kind of lime to use is the kind the laborer is accustomed to handle.

Hydrated Lime. The outstanding feature in the development of the lime industry is the rapid growth of the manufacture of hydrated lime in comparison with quicklime. It has found a wide market for addition to concrete in the construction of both buildings and roads. The practice of adding it to cement mortar for laying brick is almost universal. As a plastering material, its greater convenience has made it a serious competitor with lump lime, especially in the large cities where space and time are important considerations.

Hydrated lime is prepared by adding to quick lime just sufficient water to insure complete slaking and under such conditions that the heat generated will evaporate all the excess water, leaving the product dry. Since slaking is accompanied by an increase in volume, the lumps of lime fall into powder during the process. Any impurities in the lime will not slake, will not fall into powder, and consequently any large particles of them can be removed from the finished product by screening. It, therefore, generally contains less impurities than the lime from which it was made.

Hydrated lime consists essentially of calcium hydrate and magnesium oxide, for it is generally conceded that the magnesia does not slake during the ordinary process of manufacture. The quantity of water contained varies from 24.3% for pure high calcium hydrate to 11.3% for impure dolomite hydrate.

Varieties.—There are many varieties of hydrated lime, depending on the fineness of the grain. It can be obtained screened through any mesh from 10 to 200.

Mixing with Water.—To prepare hydrated lime for use the mere addition of water is necessary. It is a rather difficult powder to wet, however, so it is advisable to let the hydrated lime and water stand for 24 hours before using. Or it can be used immediately if the hydrated lime is added to the water rather than water added to the hydrated lime.

Comparison with Quicklime.—In building and plastering operations hydrated lime may be used for any purpose in place of lump lime with precisely similar results. The consumer must pay the freight on a large amount of water, but the time and labor required for slaking lime is eliminated, and there is no danger of spoiling it either by burning or by incomplete slaking. The experience of the laborer is eliminated as a factor.

Hydrated lime will keep better than lump line, because the powder packs together into a dense mass, rendering the penetration of carbon dioxide very difficult. It can be stored with absolutely no danger of fire. For plastering hydrated lime will generally be found more economical and convenient to use than lump lime and especially for the final coat is frequnetly preferred. Similar results will be obtained by the addition of either hydrated or quicklime to cement mortar, but from the nature of the substance hydrated lime is more suitable.

Hydrated Lime in Cement Mortar.—In a series of experiments in which the portland cement in the mortar was replaced by varying amounts of hydrated lime it was found: (1) That hydrated lime up to 15% (by weight) of the cement does not materially affect the strength of the mortar, even when stored under water. (2) This amount of hydrated lime will materially increase the imperviousness to water of even a 1:5 cement mortar. (3) The addition of hydrated lime increases the plasticity of the mortar and makes it easier to work.

Lime Plaster.—Lime to be used for plastering must work smoothly under the trowel, must not "pop" or "pit" and must not undergo too great a change of volume during setting, and if it is to be used for the finish coat, it must have a good color. The cause of popping or pitting is not very well understood. In some cases it has been attributed to the impurities in the lime, such as clay, iron oxide, silicates and pyrites. These seem to form various chemical compounds during the burning, which hydrate

very slowly and expand during the process. For this reason it is generally conceded that lime to be used for plastering must be more nearly pure than that for any other purpose.

Another probable cause of popping is the slow hydration of particles of calcium oxide which have been burned during slaking. This is one reason for the preference of magnesian lime for plastering, although extraordinary care must be taken to slake the lime properly, whichever kind is used. Recent experiments lead to the belief that impurities in the sand are frequently responsible for popping.

Lumber. (19a)—The following are abstracts from the Technical Notes of the Forest Products Laboratory, U. S. Forest Service, Madison, Wis.

Charring does not preserve wood, No. 108.—Theoretically an area of charred wood around a post should prevent decay, because charcoal does not decay or encourage the growth of fungi. Tests on charred posts, however, indicate that they may be even less durable than the untreated ones. The charred area around a post is not usually a solid covering. It is checked through in many places. If posts are seasoned before they are charred, the charring does not reach to the bottom of the season checks which are always present. If green unchecked posts are charred, checks will open through the charred part as the wood seasons. In either case the uncharred center of the post is exposed to fungus infection and will decay as rapidly as any untreated wood. Charring deep enough to resist decay would undoubtedly weaken a post of ordinary size.

Saving Mine Timbers from Decay, No. 110.—The life of mine timbers might be greatly lengthened by the injection of certain chemicals. At least three preservatives have been found suitable. These are coal-tar creosote, zinc chloride, and sodium fluoride.

Creosote is the most effective in preventing decay. Timbers thoroughly impregnated with it are likely to resist decay until they are crushed or worn out. Occasional objection is made to the possible fire hazard of creosoted wood, but long experience indicates that the additional fire risk is very small.

Zinc chloride and sodium fluoride are odorless, and if anything they tend to reduce the inflammability of wood. They are cheaper than creosote, and although they do not give such permanent protection they greatly increase the life of timbers.

Coal-tar creosote may be applied by the brush, dipping, open-tank, or pressure methods. Zinc chloride and sodium fluoride may be injected by the steeping, open-tank, or pressure methods. The cost and effectiveness of the methods of treatment increase in the order given.

Color of Cypress Heartwood No Indication of Durability, No. 113.—Southern bald cypress is variable in color. In different localities it is known as RED CYPRESS, YELLOW CYPRESS, WHITE CYPRESS, and BLACK CYPRESS. Service records indicate that any difference in the length of service of red cypress and yellow cypress is due entirely to a difference in the amount of sapwood in the timbers, and not to any physical difference in the character of the heart wood. Cypress trees with light colored heartwood usually have more sapwood than those with dark colored heartwood, and sapwood is not resistant to decay. The important consideration, if durability is desired, appears to be to select the heartwood of cypress regardless of its shade.

How To Tell Birch, Beech, and Maple Apart, No. 116.—These woods are very similar in appearance, have approximately the same weight and one of them may be easily mistaken for another. They may be distinguished, however, by the relative width of the pores and medullary rays.

If the end grain of the wood is cut smooth and examined with a hand lens, the pores will be seen as tiny holes distributed fairly evenly over the surface, and the medullary rays will appear as narrow lines of a different shade running at right angles to the growth rings.

In BEECH some of the rays are very distinct even without a lens. The large rays are fully twice as wide as the largest pores.

In MAPLE the rays are less distinct, and the largest are about the same width as the largest pores.

In BIRCH the rays are very fine, invisible without a lens. The pores are several times larger than the rays, usually being visible to the unaided eye as minute holes on the end grain and as fine grooves on dressed faces of the board. The pores in birch are considerably larger than the pores in beech or maple.

The appearance of the medullary rays of a "Quartered" surface is also distinctive. Here they appear in BEECH as distinct "flakes", the largest being between 1/16 and 1/8 inch in height when measured along the grain of the wood. In MAPLE they are considerably smaller, rarely attaining a height of 1/16 inch. In BIRCH they are comparatively inconspicuous.

Comparative Value of Timber Cut from Live and Dead Trees.—"When sound dead trees are sawed into lumber, and the weathered or charred outside is cut away, there is no method known to the Forest Products Laboratory by which the lumber can be distinguished from that cut from live trees, except that the lumber from dead trees may be partly seasoned when sawed.

"All the information available at the laboratory indicates that timber cut from insect or fire killed trees is just as good for any structural purpose as that cut from live trees of similar quality, providing the wood has not been subsequently injured by decay or further insect attack. If a tree stands on the stump too long after it is killed, the sapwood is likely to become decayed or badly infested by wood-boring insects; and in time the heart-wood also will be similarly affected. The same thing is true of logs cut from live trees and not properly cared for. Until the wood becomes affected by these destructive agents, dead tree wood should be just as strong and just as durable as sound live tree wood.

"In considering the subject it may be useful to remember that the heartwood of a living tree is entirely dead, and in the sapwood only a comparative few cells are living. Most of the wood cut from trees is dead, therefore, regardless of whether the tree itself is living or not. Such being the case, purchase specifications, instead of providing that material must not be from dead trees, should state that material showing evidence of decay or insect infestation exceeding a specified limit will not be accepted."

Brass. (15b)—"*Seven Centuries of Brass Making*" is the title of an instructive booklet published by the Bridge-

port Brass Company. It is, as its title implies, a technical history of brass, the art of making which is traced from the earliest known periods down to the present day. The introduction of the electric furnace is referred to and a detailed description is given of its applications to the plant of the Bridgeport Brass Co. The last few pages are devoted to a discussion of the characteristics of brass, additions and impurities, and structure.

The quality of brass has been a matter upon which reliable data for the specifications has been difficult to obtain. While the primary purpose of the booklet is to point out the wide range of physical characteristics that can be imparted to brass by variations in composition, heat treatment and manipulation, it contains nevertheless a wealth of specification data. The following quotations are of interest to the architect:

"Comprehensive attempts to draw specifications for various forms of wrought brass have not been conspicuously successful except in isolated instances. This is because of the absence of reliable data of a specific nature relating the various properties of brass to the requirements of individual users . . .

"Accurate knowledge of the physical properties of brass and the use of scientific methods in its manufacture have not heretofore been of sufficiently wide employment to have resulted in any generally accepted practice in specifying the qualities of brass required for specific uses or in testing it for the determination of its suitability. As a general rule, therefore, the largest measure of satisfaction can be secured when the brass maker is cognizant of the exact purpose for which the material is to be employed and in close cooperation with the user can apply his knowledge and skill to the selection of mixture and treatment best adapted for the purpose."

"The useful alloys of copper and zinc cover a series from about 55 per cent of copper and 45 per cent of zinc up to pure copper, and exhibit a wide range of normal properties and characteristics according to the proportions of the two constituents present."

"Mixtures high in zinc are relatively unimportant because of their comparative lack of toughness which prevents their being readily worked cold. When containing less than 63 per cent of copper, however, they are readily rolled forged or extruded when hot. Within this range they are usually alloyed with other constituents for particular purposes. In the intermediate and lower ranges from 57 to 60 per cent copper, iron and tin are added, either singly or in combination, to the extent of about 1 per cent each, to increase strength, forming the manganese bronzes and naval brasses. The range from 60 to 63 per cent combined with about 3 per cent of lead covers the mixtures usually employed for making "leaded" or "free cutting" brass rod for screw machine use. From 63 to 70 per cent are the high brasses ordinarily employed in making sheet and strip and which constitute by far the greater part of all the sheet produced. Mixtures containing the higher percentages of copper are necessarily more expensive and are required when color or certain qualities of toughness are important."

"The properties of any individual mixture may be varied over a wide range by varying the amount of cold working from the annealed state and by varying the annealing temperatures from the cold worked state. The relative effect which a given amount of cold working or degree of annealing produces varies with the proportions of copper and zinc present."

"The quality of copper ordinarily employed in brass is exceedingly high, containing ordinarily 99.9 per cent or more of copper, the balance being largely oxygen, the presence of which is required mainly to enable the metal to be cast in suitable form."

"Zinc is, however, obtainable in various qualities, the chief variable impurity in which is lead, which is found in various percentages, from a few one hundredths up to as high as 2 per cent."

"The quality of brass is affected to a considerable degree by the amount of lead carried by the zinc of which it is produced. The effect of this ingredient is to lower its toughness, ductility and ability to withstand cold working processes, involving stretching and distortion. The presence of lead also has a very marked effect upon the ease with which brass can be cut with a tool, and where this property is of importance, lead is purposely added up to 3 per cent or slightly over."

"Next to lead the most important impurity carried by brass is iron . . . the effect of iron is to reduce ductility and increase hardness and its influence in these respects is markedly detrimental when present in quantities over 0.1 per cent."

"Tin is sometimes present by accident and sometimes by design. It increases the elastic limit and hardness of the material somewhat and acts as a deterrant to certain corrosive influences."

Garages. (35m)—The Ramp Buildings Corporation has published a standard size booklet descriptive of the *d'Humy Motoramp System of Building*. It is of interest to note that printed on the outside cover is the A. I. A. Standard classification number for filing. This system is described as a building of staggered floor construction, divided into two units by a wall, the level of the floors in one unit being halfway between the level of the floors of the other unit. The main aisles of the two units are connected by inclined driveways. It is thus possible for an automobile to ascend or descend under its own power from any one floor to another. It is claimed that by this method of construction a continuous stream of cars can be handled, that a greater number of cars can be stored in any given floor area and that the system makes self service possible and reduces the number of garage attendants necessary.

Flow of Water in Drain Tile. (29b2)—The U. S. Department of Agriculture Bulletin No. 854 is a fifty page 6″x9″ technical publication describing the Department's investigations on this subject. Various formulae for the flow of water in drain tile are given and compared, as well as a detailed description of the experimental plant used in conducting the tests and results of field observations.

Supplement to The Journal of the American Institute of Architects
The Octagon House, Washington, D. C.—August, 1920

Platting City Areas for Small Homes

By HENRY WRIGHT*

Foreword

THE COMMITTEE on Community Planning presents Mr Henry Wright's report on the Platting of Urban Areas. One cannot read it without realizing the influence of the individual subdivision on the general problem of the city. A street system, perfect beyond criticism, traveling hand-in-hand with a lot subdivision, stupid beyond expression, is very often accepted as city planning. With rare good sense the author confines himself to one field of investigation and demonstrates to the speculative builder that a money advantage will attend the better and more intelligent use of land. Mr. Wright's contention is that both the group and detail planning of the dwelling may be improved without demanding any changes in our economic and commercial customs. In so doing he is not searching for the Solution of the Housing Problem. He says as much in explicit terms. He accepts a land cost substantially the same for each family independent of the area of ground required or the number of families using the same area. This land cost is based upon its economic possibility as it appears to both buyer and seller and Mr. Wright shows both parties to the bargain a better and more profitable way to transact their business. Their reward will be expressed in terms of money and the tenent will pay the bill for the land as it becomes more desirable and has a greater use value. The Committee feels that Mr. Wright has made a valuable contribution in this restricted field and commends his research to the earnest attention of all interested in building the small house.

JOHN IRWIN BRIGHT, *Chairman.*

PART ONE.

Introduction

A serious impasse now exists throughout the country retarding if not almost suspending the production of housing through the normal methods of real estate development and building. During the period of the war such a suspension was to be expected, but it is most significant that in spite of the existing recognized serious shortage, those forces which normally provide for the financing and building of homes have failed to function in any degree commensurate with the need.

Without attempting either to condemn or condone those practices of the past which are to a large extent accountable for the present situation, it is desired to point out certain possible improvements in the methods of housing production which may be accomplished either through a limited adjustment of the present recognized forces or by such new agencies as may most readily be introduced, without losing whatever value there may be in our time-worn mechanism. It will be essential, however, that these constituted forces undergo a careful scrutiny upon the following counts:

(1). Has the past method, generally pursued in opening up new real estate primarily as a speculative investment, proved, or is it likely to prove, an efficient agency in producing a dependable and unwasteful use of land for housing purposes, and can it be counted upon to produce an adequate supply of desirable housing actively respondent to the actual needs of the community?

(2). Can the prevailing method of private and largely unrestricted procedure in land promotion be made to supply, with an equitable expenditure of public funds, the conveniences and amenities to which the home-owner is entitled?

Certainly, we must admit that much of our past real estate operation will not measure up to a proper standard in the light of these considerations. It does not necessarily follow, however, that real estate development may not proceed as a legitimate and profitable business, but it is essential that we determine at once whether the purpose of such development is primarily to support the real estate industry and those financial institutions which pertain to mortgaging, title examination, and financing of home property, or whether they can be satisfactorily directed to the major problem of producing a constant supply of desirable homes suitable for the use of the average family and within its means of acquirement. Unless this can be accomplished through the existing agencies, it readily must be seen that a matter of such vital importance must be otherwise met, and it will be met, even though land subdivision should not continue to prove a source of profit to those interests which have heretofore thriven upon the desire of our people to own their own homes, but who have too frequently confused this desire with their unguided willingness to enter upon speculative ventures.

The Immediate Housing Problem

Briefly, how shall we proceed at this time to produce the largest amount of suitable housing in populous areas while maintaining the greatest degree of efficiency and comfort commensurate with our public and private resources in material, labor and finances?

Without doubt our utmost efforts, even though wisely directed, must fall short of meeting the housing deficiency in our cities for many years to come. The writer has therefore accepted as inevitable a degree of intensity of land use at least as great as that heretofore prevailing for the kind of housing available to the family of moderate means. It is hoped, however, to show that by a careful and unprejudiced study of the problem, the same amount of land and the same general accommodations may be so disposed as to produce more efficient and desirable living accommodations and at the same time conserve the available public facilities.

*Advisor in allotment and community planning, member Committee on Community Planning, A. I. A., Assistant Town Planner in the housing developments of the Emergency Fleet Corporation during 1918–19.

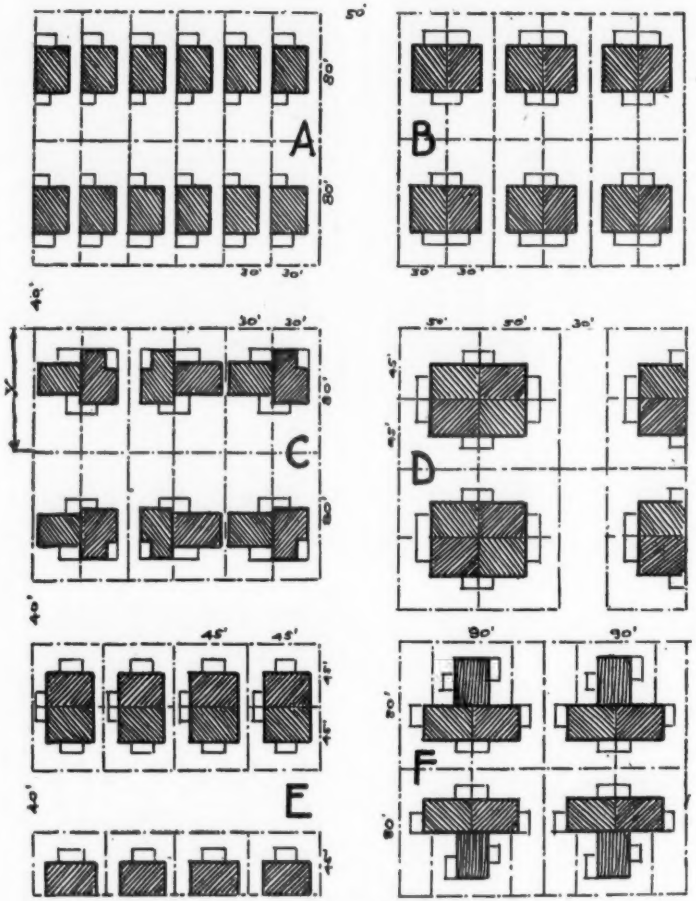


PLATE I.

FIG. A.—Individual detached houses, lot 30 x 80 feet.
FIG. B.—Semi-detached houses, similar size, lot 30 x 80 feet.
FIG. C.—Adaptation of "row type house" in groups of four; end houses narrow to the street; intermediate houses with broad street frontage; center houses require either a front service door or rear service way.
FIG. D.—Four-family house with cross party walls, each house occupying one-fourth of the building. The precedent is German, but the principle has been applied in elaborate houses in North Philadelphia and in a portion of the housing development of the Shipping Board at Chester, Pa.
FIG. E.—Semi-detached house; party wall forms back instead of side of adjoining houses. Some elaborate houses have been built on this plan in West Philadelphia; they make a more pretentious appearance than would two individual houses of similar costs.
FIG. F.—Application of the two-party-wall principle in a three-family house all having a frontage on the street. An example of this has been recently built in New York; arrangement similar to the flat illustrated in Plate XIV.

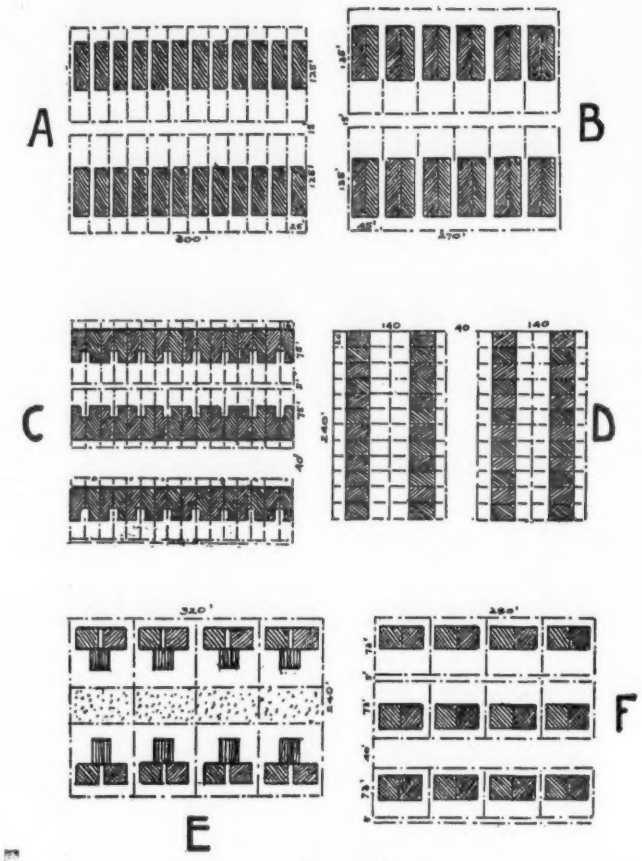


PLATE II.

FIG. A.—Two-family flat largely built in Chicago and St. Louis on lots 25 and 30 feet broad which, during the decade following 1900, provided the largest portion of the housing built in those cities.
FIG. B.—Four-family building on lots from 40 to 50 feet wide divided by a center party wall. While A is frequently sold to individuals, B has usually remained a rental property.
FIG. C.—Continuous-row type dwellings built largely in Philadelphia (1900-1910) consisting of three rather cheerless rooms arranged tandem on each floor with narrow light court in the rear on each alternative party wall.
FIG. D.—"Air-light" house usually of from 5 to 6 rooms sufficiently increased in width to eliminate the rear light court.
FIG. E.—Example suitable for three families on each floor with single stair hall having distinct advantages over A and B in the openess provided for all exposures of the living rooms.
FIG. F.—Improved plan for a four-family dwelling taking the place of type B further shown and discussed in connection with Plates III and IV. It requires a somewhat increased length of lateral streets but has many compensating advantages.

PLATTING CITY AREAS FOR SMALL HOMES

Platting of Semi-Suburban Areas

The comparative advantages of various methods of arranging houses suitable for individual ownership.

A lot area of average size is assumed, based upon an individual lot size of 30 x 80 feet or 2400 square feet net. The gross area per family is approximately 3250 square feet based upon a block size of 160 x 600 feet with 40 feet lateral and 50 feet cross streets. Plate I shows six different types of house and lot arrangement suitable for individual ownership in which the ground floor area, porch sizes and set-back from the street have been made as near identical as possible.

In a study of these various arrangements is it quite evident that in each of the various groupings a greater degree of openness has been secured than in example A of the individual detached house. Persistence in building the single house can only be attributed to the desire or the assumed necessity for conducting platting and building as independent operations, so that adjoining property-owners may proceed independently without great annoyance to their neighbors. As a matter of fact little privacy is secured in example A, and the narrow spaces between houses are difficult to keep in order unless entirely paved.

There is a further great advantage in all forms of group houses in construction economy; careful estimates show that a rectangular semi-detached house can be built for from 10 to 12 per cent less than a practically identical detached house. The semi-detached house can be planned to give ample light and air and on an equally broad lot will have a better outlook and appearance. The row house will show a further economy reaching approximately 15 per cent for the interior houses in the arrangement shown and 20 per cent for a continuous straight frontage row grouping.

The four-family house shown in D gains a still further construction economy although losing something in ventilation. It is evident that both examples D and E involve an increased cost for street construction and that the available garden space must be reduced by the area of the additional streets. However, by an arrangement as shown in Fig. 2, Plate X, both of these difficulties may be overcome. Those interested in the further study of this subject are referred to the examples of war housing by the Emergency Fleet Corporation and the United States Housing Corporation as well as English housing for war emergency. In all of these will be found excellent examples of grouped and especially short-row houses, designed to overcome the monotonous appearance of the congested city-row house.

For comparing costs in this series it may be stated that based upon a land cost of $5000 per acre, the site cost per family will be from $375 to $400 for land and from $300 to $325 for streets, except for D and E where the street cost will be increased by $150. Allowing an additional $125 for miscellaneous costs of land development, the totals range from $750-$800 for A, B, C, and F, to $950-$1000 for D and E. For comparison with examples in Plate II, land must be figured at $10,000 per acre, which would add $375 in each instance.

Platting Interior City Areas

It is safe to assume that a large portion of that property suitably located for building small homes in city areas represents a land cost of at least $10,000 per acre. While this high cost is very commonly attributed to profiteering and unearned increments it must not be overlooked that it usually represents a degree of convenience and improvement more necessary to the family of moderate means than to those who can afford to pioneer in suburban districts. To avoid criticism on this particular point let us therefore use the cost per acre as the best understood method of expressing the relative item of land cost in the city dwelling which represents its availability and its use of space. In this case it may not be amiss to assume that the home owner as well as the house builder secures an advantage from those economies in building methods and arrangement which are brought about by a judicious and economical use of any given space to be occupied for residential purposes.

It must be increasingly evident to those who are studying the relation of city planning to the economic situation that a continuation of wasteful methods of platting and land occupancy cannot readily be adjusted to the interests of the public as a whole, especially in the matter of excessive costs for the extension of public utilities. It may not be going too far to suggest that in the near future our zoning laws may not only be directed toward preventing too great crowding in certain areas of the city but also toward restraining an overgenerous use of space and consequent public costs in certain other more favored areas.

On Plate II have been assembled examples of housing current in various cities as a means of reducing the space and public utilities required for housing a given number of family units. Such a reduction has been increasingly necessary in the modern rapid expansion of our larger cities while at the present time smaller cities have so fallen behind in their extension of public utilities that it is not uncommon to find them also invaded with multi-family types of dwellings. The various examples in Plate II include both flatted and continuous row single dwellings shown at the same scale and requiring the same gross area per family. It would be useless to discuss the relative merits of well-designed flatted dwellings and equally well designed row houses. It is usually possible to secure a greater degree of light and air and reduced construction cost in the former, while the latter permits individual ownership; but the considerable improvements possible in either type of dwelling over the present prevailing practices are developed under the heading "Community Planning."

It is interesting to note that the cost per family for all the examples in Plate II (based upon a land cost of $10,000 per acre or double that used in Plate I) is practically the same as in the types of allotment in Plate I. The cost per family for various examples on Plate II is approximately as follows:

A, B, C, and E land cost $400, street cost $200, miscellaneous $125, total $725.

D and F land cost $425, streets $250, miscellaneous $150, total $825.

Bad Planning Due to Antiquated Methods of Allotment

The outstanding technical factor at the bottom of the production of bad housing at this time arises from the fact that engineers and subdividers have gone on platting land

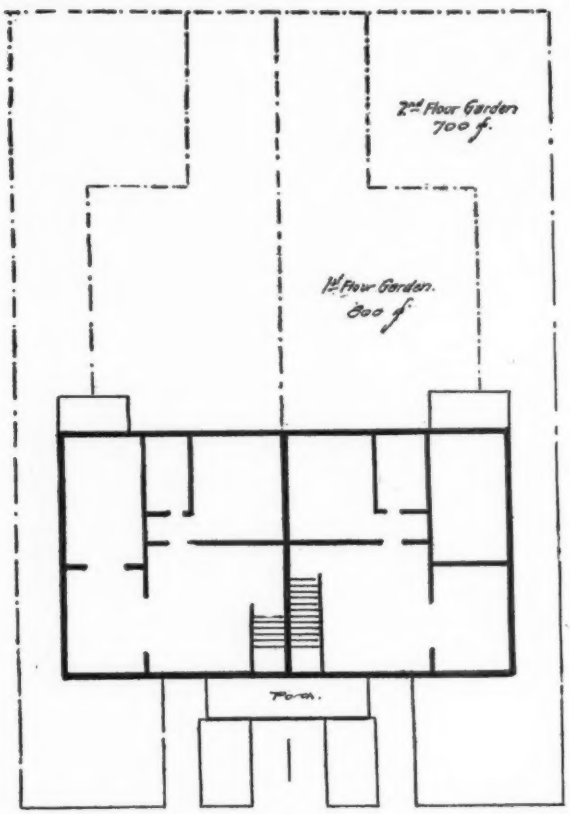


PLATE III.

into lots suitable only for individual houses (and not even advantageously shaped for these), although the inevitable use for such land has been for multi-family dwellings for which the lots are quite inadequate, wasteful, and ill-arranged. Plans worked out under these conditions become fastened upon the mind of the builder as well as upon the community, and make any improvement most difficult to bring about.

The writer has concluded from his studies that the type of building used as a basis for plan E, Plate I, presents a most hopeful prospect for a practical and conservative form of housing, offering much in the matter of economy while preserving a maximum of individuality for family life. Such a four-family unit, with individual garden space and service entrance, is shown in Plate III. Actual plans for building operations of some scope, based upon this plan, are now under consideration but as yet this principle has not been actually applied. A similar type of building, except for the individual rear yard and entrance, was adopted in the Government work at Chester and Newburgh and as a three-story apartment in Bridgeport.

In practically every type of housing plan, improvements and economies are to be secured by broadening the lot frontage. This fact is generally appreciated by architects but it may be necessary for them to make some consider-

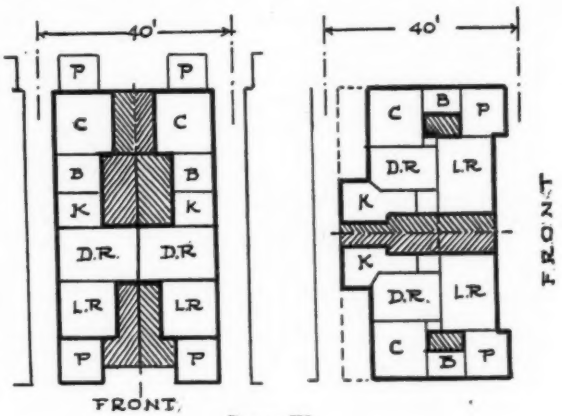


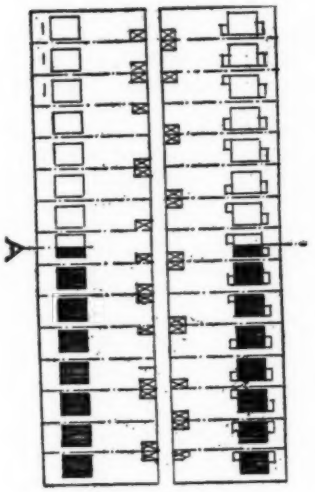
PLATE IV.

able effort to convince those interested in land allotment of the practicability of adjusting their plans to provide these evident improvements.

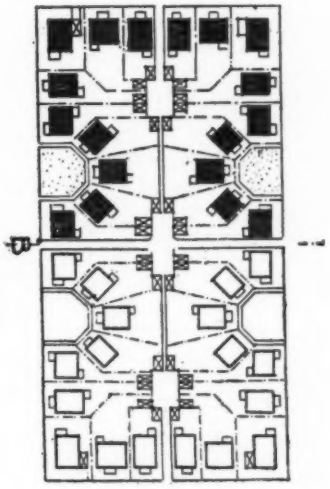
A concrete example of actual building economies which more than offset increased allotment and street cost is shown in a recent experience of the writer. The crudity and lack of efficiency in planning which prevailed in the current local type of small apartment building (St. Louis) was so evident as to demand a comprehensive illustration of better combined land and house planning. The type of plan in use had taken root during the transition of the single-family dwelling to the four-family flat as illustrated in example B, Plate II, but while the plan remained as stupid as ever, it now masqueraded with a new front as a so-called "apartment." It seemes necessary to demonstrate by actual example to what extent improvement might be made in the use of the same space and materials properly disposed. In Plate IV the two plans are presented, the usual deep lot plan placed opposite the broad frontage plan. The available floor space is identical in the two plans although better distributed and much more conveniently disposed in the new plan, but the gross area of the building has been reduced 14 per cent. This saving has been profitably applied in giving a better architectural aspect to the new building, the old one being a flat roofed affair with a false front. The new type of building is showing increased value and is being copied by other builders.

The time is especially propitious for efficient planning ideas; advancing building costs are automatically suppressing much of the inefficient methods heretofore practiced by the building speculator. The present tendency throughout the west is to resort to what is known as the "efficiency apartment," a building supposedly for dwelling purposes, comprising a large number of small two and three room suites with tiny kitchen and dining accommodations, closet beds and other space-saving devices. The lack of logic or ability of the builder in resorting to such questionable measures often appears, as in a recent example of a high-class "efficiency apartment building" in which the accommodations consist of only one main living room with alcove accessories, while the bath room with closet occupy an area 5 x 17 feet lighted only at one end.

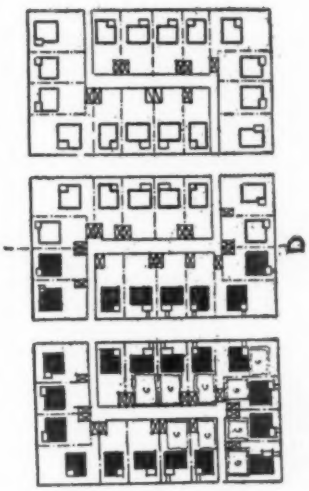
PLATTING CITY AREAS FOR SMALL HOMES



1. Single family dwellings on lots 40′ x 145′—in usual row frontage—on opposite streets. Unsightly end block aspect and heterogeneous rear yards. While rear yard area is large it has no direct relation to the living part of the houses. Side Yards are narrow and outlook restricted. Accommodation for 30 families, 6⅔ per gross acre.

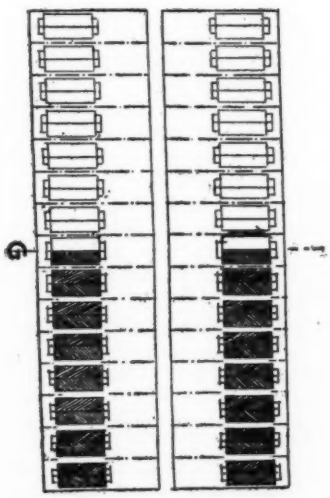


2. Community plan for single family dwellings with frontage on four streets. Wider side yards and good outlook. Note orderly arrangement of garages and convenient access without private drives even in center of block. Opportunity is also afforded for a variety of house plans with broader frontage. Accommodation for 36 families, 7¾ per gross acre.

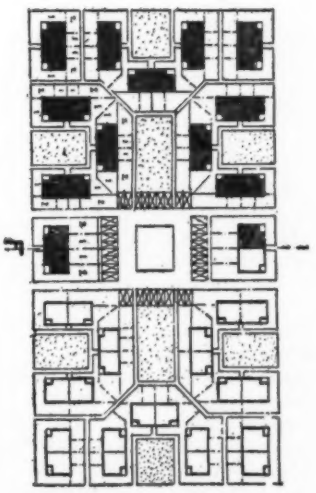


3. Community plan for somewhat smaller houses with lots 35 to 50 feet wide with opportunities for a variety of plan, in intimate relation to gardens and service road for individual garages. Equal to a lot frontage of 25 feet. Arranged as No. 1. Accommodations for 48 families, 10¼ per gross acre.

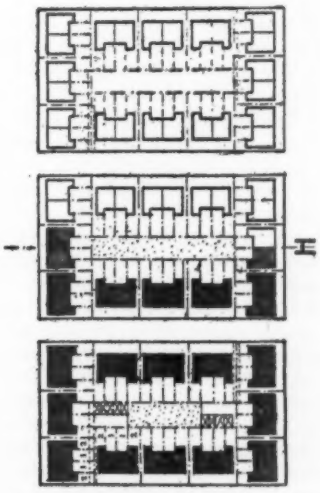
PLATE V.



4. Smallest type of four family flat on lots 40′ x 140′ with string of rooms mostly facing narrow side court. Plan requires dark halls and waste internal area. This type is found in many large cities. No attempt is made to provide individual yard space. Accommodations for 120 families, 26 per gross acre.



5. Arrangement of four family flats with square plan, providing compact room arrangement, no waste area, good outlook for every room. Independent yard space for each family. Common garage group and rear playground may be avoided by somewhat different arrangement. Accommodations for 108 families, 23⅓ per gross acre.



6. Type of small square plan flat equal to usual small flat as in No. 1, but providing better light, air, and outlook with independent rear yards. Favorable in cost and land use as compared with smallest solid row type house. Accommodations for 144 families, 30¾ per gross acre.

PLATE VI.

Analysis of Present Allotment Methods in Relation To High Building Costs

While there are factors foreign to this discussion which affect the proper solution of our present housing difficulties, it is very evident that the general methods of land subdivision and building heretofore practiced have been far from efficient and economical. Even so, it is difficult to appreciate the full significance of the accumulated external and over-head costs attendant upon independent and desultory building without making a most careful analysis of all of the elements which enter into the problem. It is aside from the purpose of this paper to consider in any detail those important matters which relate primarily to the construction cost of the building, and while generally it will be shown that an important saving can be made in methods of land allotment in direct relation to the arrangement of the building, it will also be appreciated that this land saving will result in an additional saving in construction cost, not accounted for in this study.

Adaptation of Old Type Subdivision to Better Plans

Before proceeding to discuss fundamental changes in our methods of land allotment which may bring about a maximum enjoyment of the benefits to be secured, it may be well first to consider to what extent certain of these benefits may be obtained even when applied within the limits of the usual form of street and lot subdivision now existing. This is especially necessary in view of the fact that the present excessive cost of and difficulty in obtaining public improvements must necessarily retard new development, and vacant property in older sections should as far as possible be made use of at this time. In most of the newer cities of the country, including many of the larger cities of the middle west, a deep lot subdivision has given rise to many of the evils of housing in the past. Wherever vacant property of this character may be secured, or where we can consider reconstruction, opportunity is offered for re-subdividing lots and the introduction of minor streets or lanes to produce sites more advantageous than the standard method.

Plates V and VI offer suggestions for replatting normal deep lot subdivision, on the basis of from 30 to 144 families within the same superficial area. The influence of the lot upon the house in respect to light, air, outlook, and privacy can easily be understood by a study of these plates. In examples Nos. 2 and 5 a form of community ownership or control is required, but in the even more intensive examples Nos. 3 and 6, independent ownership is preserved. No. 6 is an adaptation of the four-family flat shown in Plate IV, and can be sold in units of two dwellings upon the principle of the semi-detached house, but having individual gardens.

These suggestions readily prove that it is quite unnecessary to maintain a large individual lot in order to secure benefits of good outlook, ventilation, and even private garden space. Since we may house nearly five times as many families in No. 6 as in No. 1, we may well question the value of individual allotment under present conditions; it tends greatly to increase the difficulty of providing sufficient improved land for residential occupancy. The significance of these suggestions is realized when we consider the aggregate cost of all of those items included in the external improvement of the site for detached allotments.

At the Ottawa City Planning Meeting, October, 1919, there was presented a paper by Mr. Morris Knowles, formerly Chief Engineer for the Housing Division of the Emergency Fleet Corporation. Mr. Knowles may be considered one of our foremost authorities on land subdivision and certainly we cannot question what he presents as a careful "quantitative analysis" of the subject of cost in the production of sites suitable for individual homes in an industrial district. His paper shows that all of the external costs, not including profit, attendant upon the erection of a $3,000.00 house in suburban areas, will aggregate about $2,469.00 or 45.15 per cent of the total cost. Cost of the land amounts to only $396.00 or less than 7.2 per cent; while items applying to street and lot improvements, public utilities and connections amount to $1,575.00 or 29 per cent of the total cost of the property. Now practically all of the latter expense is directly affected by the type of building in relation to street frontage and arrangement upon the site. The unit of occupancy used by Mr Knowles is a single cottage on a lot 42 x 80 feet. In the four family flat in figure 6, Plate VI, the land cost for this type is reduced about $200.00 while the improvement cost is reduced $850.00 per one-family unit. In both cases the land is valued at ten cents per square foot or $4,356.00 per acre.

Thus while we are giving so much attention to land cost and land profiteering, we may be overlooking our extravagant method of site use, a matter of much greater proportionate consequence, as things are at present.

Economy of Standards in English Town Planning

The English town planners who have had an extended experience in these matters thoroughly appreciate the importance of economy in site development and building arrangement. They have thus built up a technique in this matter which conserves an arrangement of individual row-type cottage and large garden allotment with a minimum of street and utility cost.* But many things have been incorporated in the English town plan which will be most difficult to accept in this country. Its free use of joint ownership and easements is foreign to our habits of property holding. The English attitude toward the disposition of street and frontage as pertaining to both the use and basic value of the site will be most difficult for us to imitate. But however this may be, the results they have obtained are many and substantial and are worthy of the closest scrutiny. They may be set down somewhat as follows:

1. Reduction of street width for all minor residential streets.

2. Methods of planning at corner intersections reducing waste in side street frontage.

3. Shallow building set-back increasing the available house frontage by enlargement of the perimeter of usable area. Compare Figs. 1 and 2, Plate VIII.

4. Introduction of courts leading from frontage streets placed somewhat wide apart.

*Comparative analysis of English and American housing might be instanced in the war-housing period. In the housing for the United States Shipping Board in a number of projects a short-row type house was mainly employed with a small individual lot frontage of 16 to 20 feet but which require a total average street construction of from 35 to 50 feet of half street. In Well Hall, England, although the row houses are generally 30 feet wide and more than twice as deep, the street provision is approximately the same.

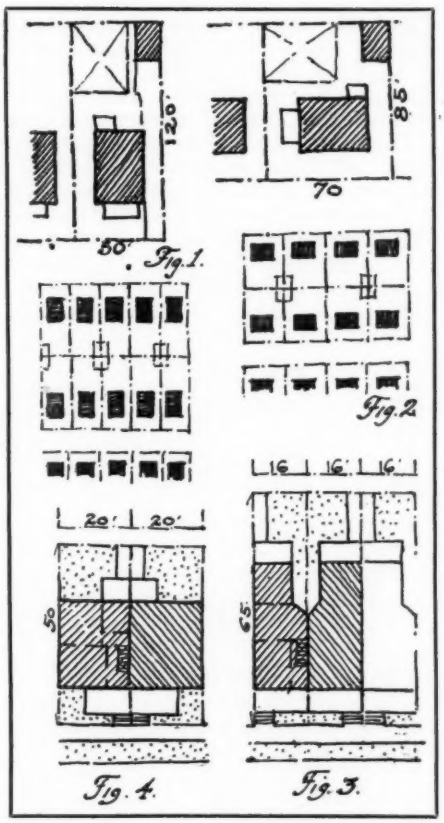


PLATE VII.

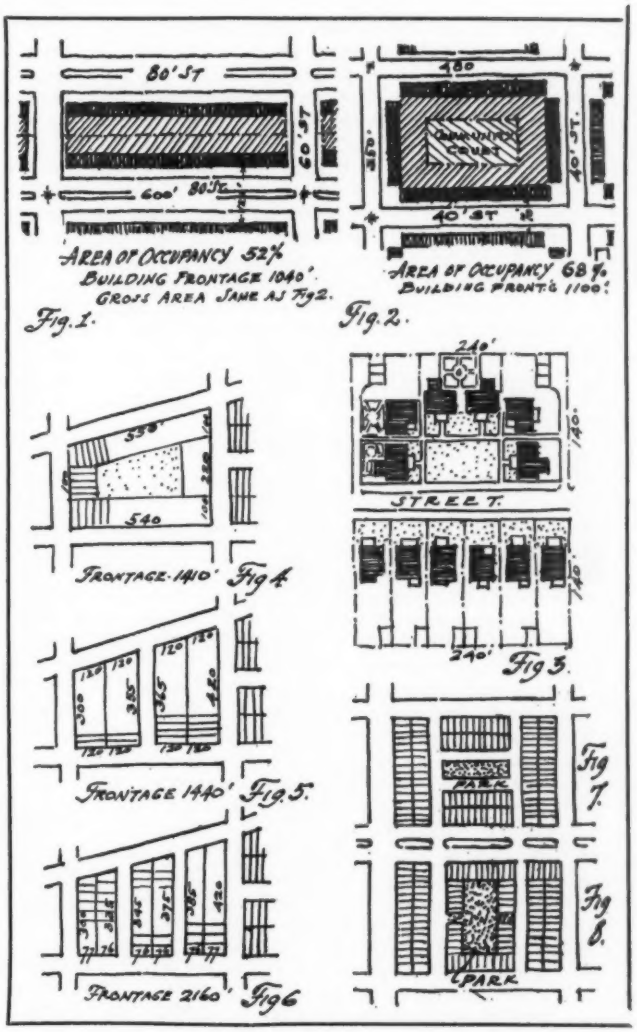


PLATE VIII.

5. Use of joint laterals for sewer and water connections to a point adjacent to buildings.

6. Avoidance of duplication in street and alley construction.

Extravagant Methods of American Land Subdivision

In comparing various methods common in this country with those abroad, the most significant extravagance is noted in our standards for width of the street including excessive front set-back and expensive street construction. Unfortunately, during a period of unlimited resources, we have come to regard property value as signified by the breadth of the street and other proportionately generous improvements. In this manner it has become necessary to provide even for the most unpretentious type of dwellings a street subdivision entirely out of proportion to its actual usefulness. The fallacy of this arrangement may be seen by comparing Figs. 1 and 2 on Plate VIII, the former being a type of subdivision frequently used in the suburbs of New York and elsewhere, in which only a very small proportion of the original land is left for actual use; or to be explicit 52 per cent, while in the other example 68 per cent of the original land can be made actually available for use and the building frontage somewhat increased by reason of the greater perimeter of the usable area. The short-sightedness of our present method of land subdivision is here evidenced by the prevalence of a system which is primarily a selling device contributing little to the actual welfare and enjoyment of the home owner, but largely increasing the cost and maintenance of his property.

The extravagance and lack of substantial merit in the accepted method of city allotment may be further seen in

Fig. 3, Plate VIII, in which a total street frontage of 240 feet is subdivided for six dwellings. In the narrow lot with deep front set-back the houses must be crowded close together with little outlook and the gardens or rear yards become so detached from the actual living part of the house as to be of little real value. A plan such as that shown on the opposite side of the street will provide better sites and outlook from every room in the house with gardens conveniently disposed and a front court yard of a most attractive nature no larger than the combined area of the front yards in the opposite property. A series of such group plans here and there in any residential neighborhood could be made far more interesting than even the most generous use of broad streets and uselessly deep set-backs. It should not be difficult to arrange for individual ownership under such a plan with of course a joint maintenance for the forecourt.

Irrational Front Foot Basis of Allotment

The most fallacious element in our method of land subdivision is the indiscriminate use of the front foot, as a basis of price and sale. To base lot price upon the front foot is no more logical than to price a building by the height of its cornice, but it has become of such general use as to render difficult any intelligent basis of pricing or improvement in method of allotment. The reason, however, for the front foot basis of lot price and the persistence of the deep narrow lot may be readily seen when we consider the relative low cost of land and high cost of public improvements especially when an actual cash investment must be made for the improvements while the land can often be carried by an arrangement for release at the time of sale.

Improvements in our allotment methods are not, however, to be predicated so much upon possible economies to be effected as upon the increased advantages in comfort and use which may be secured by the application of intelligence to this field of operation. What, then, should determine land prices as related to any particular site which is to be considered for subdivision? From the standpoint of those participating in the subdivision for purposes of profit, it is the securing of the greatest returns as related to the amount of outlay and effort required for its disposal. But, measured in social usefulness it must be to include within the space the largest number of units suitable for dwelling purposes while preserving the greatest degree of attractive utility from the standpoint of the individual and the whole community. Do these two factors conflict, or should they not rather mutually respond to a rational system of land allotment? Have they any relation to the number of front feet or quantity of pavement which, within reasonable bounds, may be necessary to produce the desired result? What then is the actual cost of a more available lot shape?

Our previous studies have conclusively shown that one of the greatest gains may be made by providing a broad frontage for the building unit. This may be secured either by increasing the actual street frontage or by a plan for a group of units not directly related to the street. The former has the advantage of more ready application under our present methods of ownership.

What Will a Broad Frontage Lot Require in Increased Cost?

Let us then consider an increase in lot width in relation to two types of land development—suburban and interior—for detached and row houses. For the detached house, say in the unit of 42 x 80 feet considered in the Ottawa report previously quoted, it is estimated that where the original site and its public utility improvements are to cost $1960 the cost per foot of additional side yard by the full depth of lot is $14.53 as compared with $48.00 per foot for the original frontage. The cost of increasing the width of the lot by 20 per cent would be only $116.24 or 6 per cent of its original cost. A study by the writer of only such costs as are affected by the lot shape indicates, that given a value of $2000 per acre the increased selling price for a 40 per cent increase in lot width need be only about 20 per cent, while in land at $10,000 per acre something less than 10 per cent must be added to the cost of the site to cover land and street costs. The illustration, Plate VII, Fig 1, for the first type of allotment is taken from the South Jacksonville Housing Operation where the allotment plans were actually altered from lots 50 x 120 feet to lots 70 feet wide by a proportionately reduced depth. The gross area of land occupied, based upon 40 foot frontage streets and 600 feet block length, was increased from 8700 to 9500 square feet at a cost of about $40.00 per lot. The alteration in plan was suggested by the desirability of using a large open-type house plan in this climate and was effected in this instance, without increased street cost, by adopting a more efficient street plan.

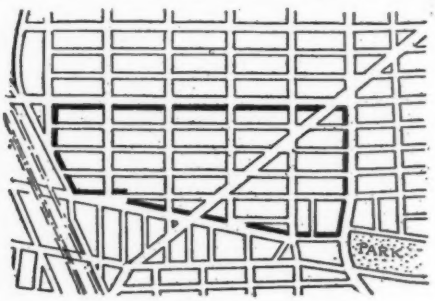


Fig. 1

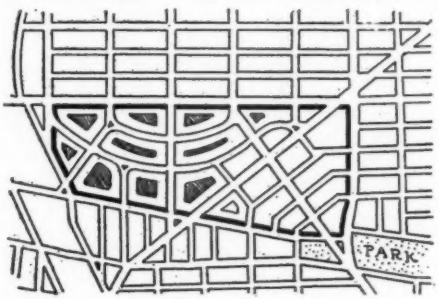


Fig. 2

PLATE IX.

Fig. 2, relating to higher priced property, is based upon general housing practice in Philadelphia. The past standard, which by certain changes in the building laws may now be improved, provided a maximum house width of 16′ and a lot 16′ by from 50′ to 65′ deep. In a major street system furnishing a net block size of 500′ x 400′, lots 20′ x 50′ may be had, which if substituted for those 16′ x 65′ will increase the cost per lot, on land valued at 25 cents per square foot, from $650 to $695. Those familiar with the Philadelphia type of house will recognize what a great improvement in plan might be had by substituting the wider lot. In proportion to the entire value of the improved property, the land cost increase would be so inconsequential as to be ignored by any real estate man, if the facts could be made known to him. It must be evident, therefore that there should be no fundamental difficulty in securing a better site based upon increased lot width.

Extravagant Street System.

In the borough of Queens and other environs of New York, the customary block subdivision projected over the entire area is based upon a lot depth of 100′ and a block length of approximately 600′. See Plate VIII, Fig. 1. In this is embodied a general custom of "adding value"(?) on the part of the real estate operator by introducing 80′wide double roadway streets. On the latter basis for a block containing 1200′ of frontage it is necessary to construct virtually 2600′ of one-half street increasing the eventual street cost and maintenance fully 50 per cent. Take in addition to this the provision for a 20′ building set-back and there remains for building purposes but 52 per cent of the original land.

Wastefulness of Gridiron Street Plan

The wastefulness of the rigid gridiron street plan becomes particularly evident when there is projected across it some new diagonal artery of traffic. In Fig. 1, Plate IX, is shown a section of the borough of Queens upon which has been projected a rectangular system of blocks 200′ x 600′ and across which has been introduced a 100′ thoroughfare in a diagonal manner. In the area shaded, it was the purpose to develop a community of single family dwellings of fairly good type on large lots. In this area, containing 87.2 acres, including one-half of the surrounding streets, the area of land within the blocks is 57.4 acres while the streets and intersection occupied the remaining 29.8 acres. The lineal feet of streets within the area is 20,660, while the salable frontage is approximately 25,000.

A re-study of the street plan is shown in Fig. 2, in which not quite eight acres of land have been "reclaimed" and appear in the form of the shaded spaces within the center of the blocks. The length of the streets has been reduced to 14,750′ a saving of something over a mile, or 25 per cent in the improvement and maintenance cost for the district. Surprising as it may appear, the salable frontage has been reduced less than 1000′ and by any application of group planning it would of course show a considerable increase in usable value at least to the extent represented by the reclaimed acreage. Furthermore, the public has been better served by the addition of diagonal thoroughfares not originally proposed. What might be accomplished in an entire town site by the application of intelligent methods of land subdivision is at least foreshadowed by this illustration.

Another fallacy of very general application is to be found in the very usual tendency on the part of subdividers to preserve the frontage on the original main artery by platting the other frontage streets parallel, rather than at right angles to the principal lines of traffic. Of course it is an accepted city planning principle that this should be avoided in order to prevent these streets from being invaded by through traffic and thus spoiling their residential quality; but what is still more interesting is to observe the depreciation in money value due to inaccessibility as each successive street is buried farther inward from the main avenue. Furthermore, frequent cross streets must be introduced and the block length materially shortened to provide the same amount of convenience for those occupying the area.

Loss in Universal Adherence to a Lot Standard

The projection of a standard type of subdivision across a particular tract of land results in the accumulation of certain remnants at the boundaries especially where they may be at a slight angle with the street system. Here the subdivider becomes somewhat puzzled but he proceeds on a basis of the more frontage the more value. He usually attempts to split this up in such a manner as he may think most nearly corresponds with his remaining frontage.

Plate VIII, Fig. 4, shows a remnant at the end of a series of blocks 540′ long cut up into the standard lot depth, where there remains a central park space of approximately one acre. At first glance this will seem to be an inexcusable waste of good land. The most usual result is to subdivide the block as shown in Fig. 5, in which the waste space is practically used up in the additional street area. But the small amount of additional fronatge by no means pays for the cost of street improvements. Of course to accept a much reduced lot depth and introduce two narrow streets, a very material increase in frontage might be secured, which if sold at a low frontage price would make available a wide lot. Otherwise, the original plan might well have been adopted devoting the waste central area either to a common use for the adjoining property or providing an opportunity for a recess court scheme such as that shown in Fig. 3.

In the consideration of small neighborhood parks it is possible to secure a much greater area by placing these within the body of the block instead of surrounding them by expensive streets as is so often done. Most of the area usually devoted in the manner shown in Fig. 7 is wasted in the surrounding street with, of course, a greatly increased cost, while a park such as is shown in Fig. 8 can be obtained at a cost no greater than the original acreage value of the land. Houses easily may be designed with an attractive rear appearance which will secure the benefit of an outlook upon the park without in any way destroying its usefulness to the community.

The Value of Community Planning

Curtailment of space requirements in houses has proceeded to the approximate limit. In some locations it has even passed beyond these bounds. Generally, such space reduction as may simplify work in the home without endangering the welfare of the family, is certainly to be

encouraged. Beyond this point, which has already been generally reached in many excellent plans for small dwellings and apartments, curtailment must come about through intelligent land use and especially in public provision for access and utilities. Field progress in this direction, commensurate with the better planning of the dwellings themselves, has not been made. Economies and improvement in these matters depend largely upon our acceptance of the principles of Community Planning as contrasted with individual development. A more intensive land use for dwelling purposes should necessarily be counterbalanced by increased provision for community conveniences and recreational opportunities.

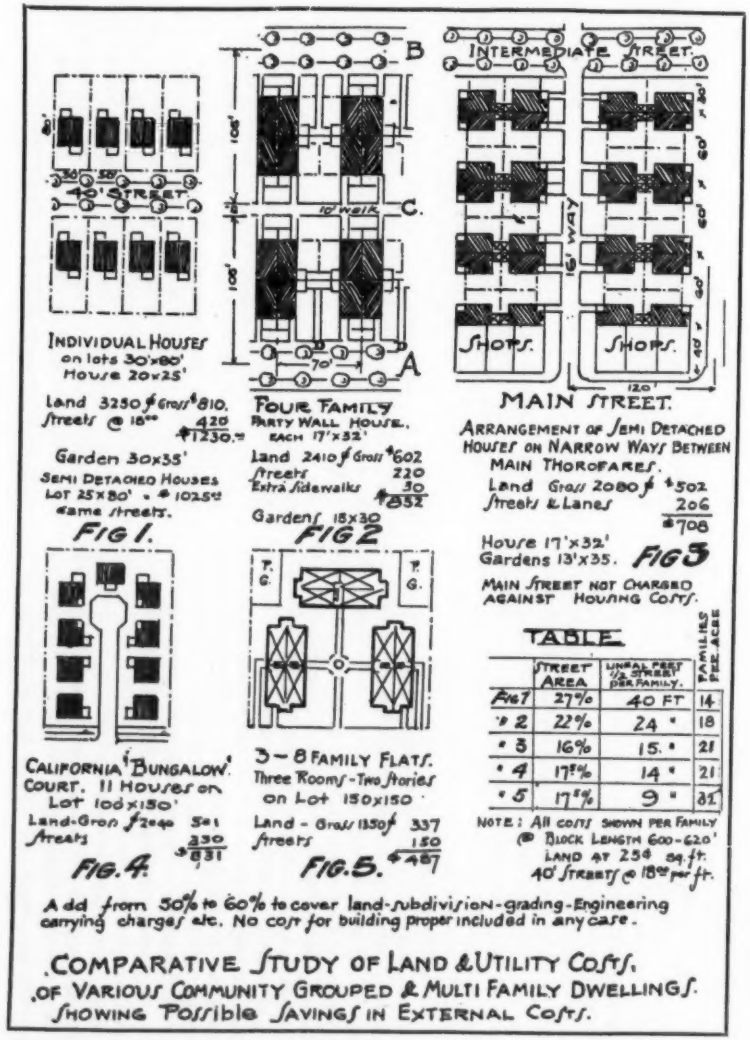
To illustrate: One of the largest housing developments for the Shipping Board was required to accommodate 2500 families. Individual rear yards were generally 16 to 25 feet wide by 25 feet deep and might readily have been reduced even below this depth as there were provided in the center of most blocks a small playground or space for allotment gardens. In addition to the generous street system, including a town square, amenities were planned as a substitute for a larger individual lot, including eight acres devoted to playgrounds and allotment gardens as previously mentioned and 20 acres for an athletic field and community club building, gymnasium and garage. While unfortunately not all of these amenities were carried out, their total cost would not have exceeded 5 per cent of the cost of the dwellings themselves and would have represented approximately the cost necessary to have provided an individual allotment of 30 per cent greater area.

It is by no means generally appreciated that the sum total of the external accessories of the house which in themselves contribute but little to the comfort of the householder, amount to a very large percentage of the cost. This is shown by the estimates previously referred to and is borne out by other investigation. When placed side by side these present quite an array, starting with the general costs of operation in land subdivision over the usual period required to the time of individual occupancy, and including streets with their pavements, junctions, curbs, sidewalks, and alleys; street and lateral sewers, disposal tanks and separate storm water drains; water, gas and electrical systems, including trunk and street mains and lateral service with possibly heating and other conduits to be added. The advantage of economy in street frontage is plainly seen when the cost of this paraphernalia is fully realized. On Plate X in the examples of Community Planning suggested, the average lineal feet of half street construction per family is about 15 feet as compared with 40 feet for the normal 30 feet front lot. In one large housing development where a considerable proportion of the houses were built in rows and had actually only from 16 to 20 feet of individual street frontage, the average half-street construction per family was nearly 50 feet due to an unnecessarily elaborate and wasteful street plan. In other words, items which normally aggregate at least 35 per cent of the cost of our housing may be reduced fully one-half by the adoption of community-planning methods. Also, control of land subdivision and housing must be brought about and be linked with all our efforts toward the more efficient development of our cities. Plates X and XI illustrate the possibilities and importance of these considerations.

To simplify the comparison a uniform scale, major block length, land cost and street construction cost per unit, has been used in each group of studies and is practically identical with those applied in preceding studies; but there has been no attempt to include a large number of items which do not greatly vary with the exact arrangement of the buildings, notably grading, carrying and operation charges and other matters which, while adding at least 50 to 60 per cent to the cost, would if considered tend to increase the comparative advantages of the grouped plans. Also, in each instance, a consideration of the individual service lines and other private lot improvements would further increase the saving effected by the community plans. Take, for example, the group of small eight-family flats, Fig. 5, Plate X, which accommodate twenty-four families. Water connections in a previously made street, sewer and drain connections and gas piping services will cost $770 for the twenty-four flats as compared with $3,480 for individual connections for twenty-four single dwellings. This saving is almost sufficient to pay for one additional flat dwelling complete.

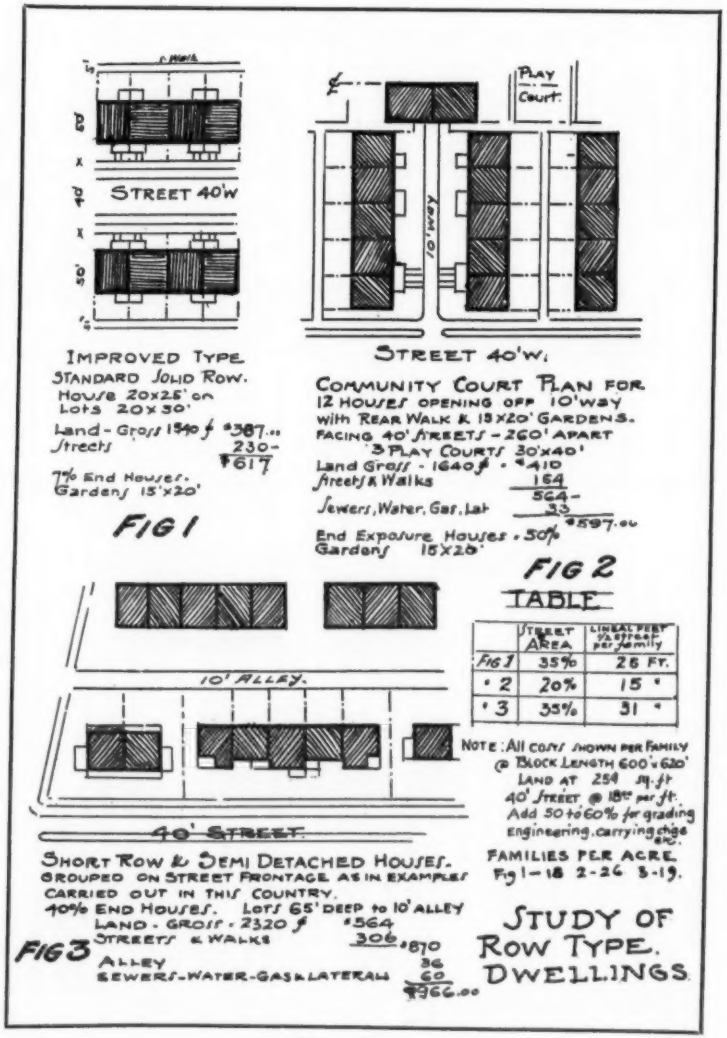
The group plans in Plate X have been placed in contrast with the individual house and lot and the semi-detached house on individual lots shown in Fig. 1. In all the schemes there has been preserved sufficient surrounding space for foreyards and gardens, but the grouping reduces the public and show space and especially the amount of street provision shown by the Table of Street Area and Length. Fig. 2 is a grouping of four-family individual party wall houses providing public street frontage A-A for every alternate house, and rear service access for all dwellings by means of walk D-D extending between the lots fronting the public street. Fig. 3 provides for a semi-detached house with sufficient space for a four-room one-story or six-room two-story dwelling separated back-to-back with room for a rear entry and coal bin, eliminating the need for a basement. Major block sizes are 550 feet between main streets by 600 feet between cross streets. In the center of the block parallel to the main street is an intermediate public street, the cost of which is included. The cost of the main street, however, is to be assessed against the shops fronting upon it, but where it is an important thoroughfare the excess cost should be borne by the general public. Fig. 4 is a plan for small or larger houses which might be applied in any neighborhood where adjoining rear yard conditions are not objectionable and offers a pleasing degree of privacy with just sufficient individual yard room to preserve surrounding air and light for each dwelling. Fig. 5 is added merely to show the relative advantages of a more intensive type of dwelling as it applies to the particular subject under discussion.

The application of all such principles as those above shown is predicated upon the assumption that housing has reached a stage in which its production will be principally confined to a few large building agencies rather than individual owners. The history of the past few years will bear out this assumption and recent investigation in one of our largest cities shows that 90 per cent of the houses built during the past year was confined to seven localities in which not more than fifteen builders were actively engaged. Under these conditions the opportunity for taking advantage of community planning seems to be immediately at hand.


INDIVIDUAL HOUSES
on lots 30'x80'
House 20x25'
Land 3250 ft Gross $810.
Streets @ 18¢ 420
$1230.
Garden 30x35'
SEMI DETACHED HOUSES
LOT 25'x80' = $1025
same streets.
FIG 1.
FOUR FAMILY
PARTY WALL HOUSE.
EACH 17'x32'
Land 2410 ft Gross $602
Streets 220
Extra Sidewalks 30
$852
Garden 18x30
FIG 2
INTERMEDIATE STREET.
SHOPS.
SHOPS.
MAIN STREET.
ARRANGEMENT OF SEMI DETACHED HOUSES ON NARROW WAYS BETWEEN MAIN THOROFARES.
Land Gross 2080 ft $502
Streets & Lanes 206
$708
House 17'x32'
Gardens 13'x35'
FIG 3
MAIN STREET NOT CHARGED AGAINST HOUSING COSTS.
CALIFORNIA 'BUNGALOW' COURT. 11 HOUSES on Lot 100x150'
Land-Gross ft 2040 $81
Streets 330
$831
FIG. 4.
3-8 FAMILY FLATS.
Three Rooms-Two Stories on Lot 150x150'
Land - Gross 1350 ft 337
Streets 150
$487
FIG. 5.
TABLE
NOTE: All costs shown per Family @ Block Length 600-620' Land at 25¢ sq. ft. 40' Streets @ 18¢ per ft.
Add from 50% to 60% to cover land-subdivision-grading-Engineering carrying charges etc. No cost for building proper included in any case.
COMPARATIVE STUDY OF LAND & UTILITY COSTS, OF VARIOUS COMMUNITY GROUPED & MULTI FAMILY DWELLINGS. SHOWING Possible SAVINGS IN EXTERNAL COSTS.

	STREET AREA	LINEAL FEET ½ STREET PER FAMILY.	FAMILIES PER ACRE
Fig 1	27%	40 FT	14
" 2	22%	24 "	18
" 3	16%	15 "	21
" 4	17½%	14 "	21
" 5	17½%	9 "	31

Plate X.


STREET 40'W
IMPROVED TYPE
STANDARD SOLID ROW.
House 20x25' on Lots 20x30'
Land - Gross 1540 ft $387.
Streets 230
$617
7% End Houses.
Gardens 15'x20'
FIG 1
PLAY Court.
10' WAY
STREET 40'W.
COMMUNITY COURT PLAN FOR 12 HOUSES OPENING OFF 10' WAY with REAR WALK & 15'x20' GARDENS. FACING 40' STREETS - 260' APART
3 PLAY COURTS 30'x40'
Land Gross - 1640 ft $410
Streets & Walks 164
564
Sewers, Water, Gas, Lat 33
$597.
End Exposure Houses + 50%
Gardens 15'x20'
FIG 2
10' ALLEY.
40' STREET.
SHORT ROW & SEMI DETACHED HOUSES. GROUPED ON STREET FRONTAGE AS IN EXAMPLES CARRIED OUT IN THIS COUNTRY.
40% END HOUSES. Lots 65' DEEP to 10' ALLEY
LAND - GROSS - 2320 ft $564
STREETS & WALKS 306 $870
ALLEY 36
SEWERS-WATER-GAS & LATERALS 60
$966.00
FIG 3

TABLE

	STREET AREA	LINEAL FEET ½ STREET PER FAMILY
Fig 1	35%	26 FT.
" 2	20%	15 "
" 3	35%	31 "

NOTE: All costs shown per Family @ Block Length 600'x620' Land at 25¢ sq. ft. 40' Street @ 18¢ per ft. Add 50 to 60% for grading Engineering, carrying chgs etc.

FAMILIES PER ACRE.
Fig 1 - 18 2-26 3-19.

STUDY OF ROW TYPE. DWELLINGS

Plate XI.

The first comprehensive attempt at community housing in this country occurred during the war period, under the two housing bureaus connected with Government work. Most of this housing was carried out in the Central Eastern States and partly because of local customs the type of housing generally adopted was based upon a row-type party-wall house providing for a four or six-room dwelling on two floors within a space from 18′ to 20′ wide by from 25′ to 30′ deep between side party walls. It has already been shown that this is the most intensive possible form of housing suitable for individual ownership. However, continuous rows of such houses facing narrow streets with a duplication of uninteresting and unbroken fronts was hardly to be tolerated, especially where land prices were as low as in most of these projects. A variation from the continuous row was therefore adopted in the form of the short groups of row houses ranging from two or three to seven or eight houses in each group. The result was that a reasonable economy was secured in construction while a pleasing and inviting appearance was obtained merely by the careful choice of design and relation of the units in the group. Quite frequently, houses of different sizes were grouped together, the larger houses being given either an end exposure or a projection from the main facade thus adding to the interest and individuality of the units.

A commendable efficiency in cost of house was thus secured and the quaint and interesting architectural result attained by use of simple decorative motives may be offered in contrast to the futile elaboration usually loaded upon the front of small individual houses or "bungalows." However, when it came to the engineering details both for the individual dwelling and the general elaborate street plans no such creditable showing could be made. Those directing the building operations felt that no departure should be attempted from the usual method of indidual street frontage for every dwelling. All sewer aud water laterals were independently installed and in the design of the streets themselves certain wasteful standards had to be maintained either because of local laws, or other considerations. The type of building therefore showed a marked inefficiency in the amount of street area and street construction which might otherwise have been avoided where a large building operation is undertaken. On Plate XI is shown generally the efficiency of the short-row group in Fig. 3, compared with the continuous row house shown in Fig. 1. Contrasted with the examples elsewhere of individual detached and semi-detached houses, the short row makes a favorable comparison. However, compared with a community grouping plan not based upon street frontage, the excess street cost is evident. The diagram shown in Fig. 2 is not intended as a suggestion for an exact method of grouping, but is merely to bring out the contrast, first with the continuous-row house which provides practically no end-house exposure, and again to show the saving in external cost as compared with the row type in Fig. 3. This plan offers also a solution of the rear entrance for row houses without the introduction either of an alley or a rear walk of such length as to be useless for service.

Cottage Court Plan

The following very interesting study and comments by Mr. T. C. Young, Architect, of St. Louis, is an especially happy illustration of the subject here discussed and is

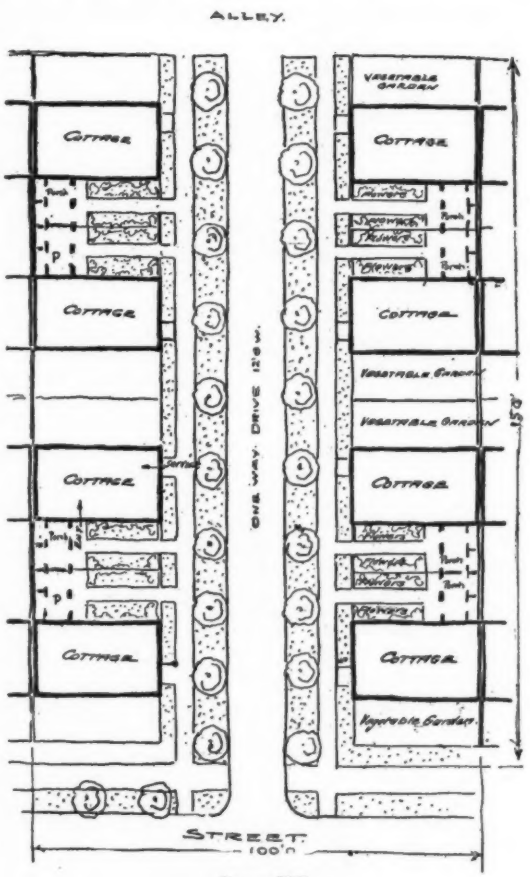


PLATE XII.

illustrated on Plate XII. Mr. Young's comments on this plan are as follows:

"The customary arrangement of a six-room house with 30′ front on a lot 40′ wide and usually about 150′ deep is unnecessarily wasteful and leaves only about 10′ between houses for privacy and light. The front yard, if kept up at all, involves a considerable annual expenditure; the back yard usually becomes a mere receptacle for rubbish of all kinds. This waste land is the primal cause of our familiar slums. In an effort to eliminate this land waste and to reduce the cost to the individual holder, I have evolved a plan as indicated on the diagram. This scheme has the advantage of being applicable to any inside lot of about 100′ front by 150′ deep, or to any large tract. The house itself is about 17′ by 29′, exclusive of the porch, and will shelter with every modern convenience, sufficient privacy, and some elegance the average family of five persons. Each home has an entrance yard with opportunity for a flower bed each side of the walk and a side yard which may be used as a vegetable garden or as an open air nursery for children. This open yard space, together with the corresponding space of the adjacent premises, insures at least 20′ between houses, affording to each owner unusual privacy, and the houses being only one story form no obstruc-

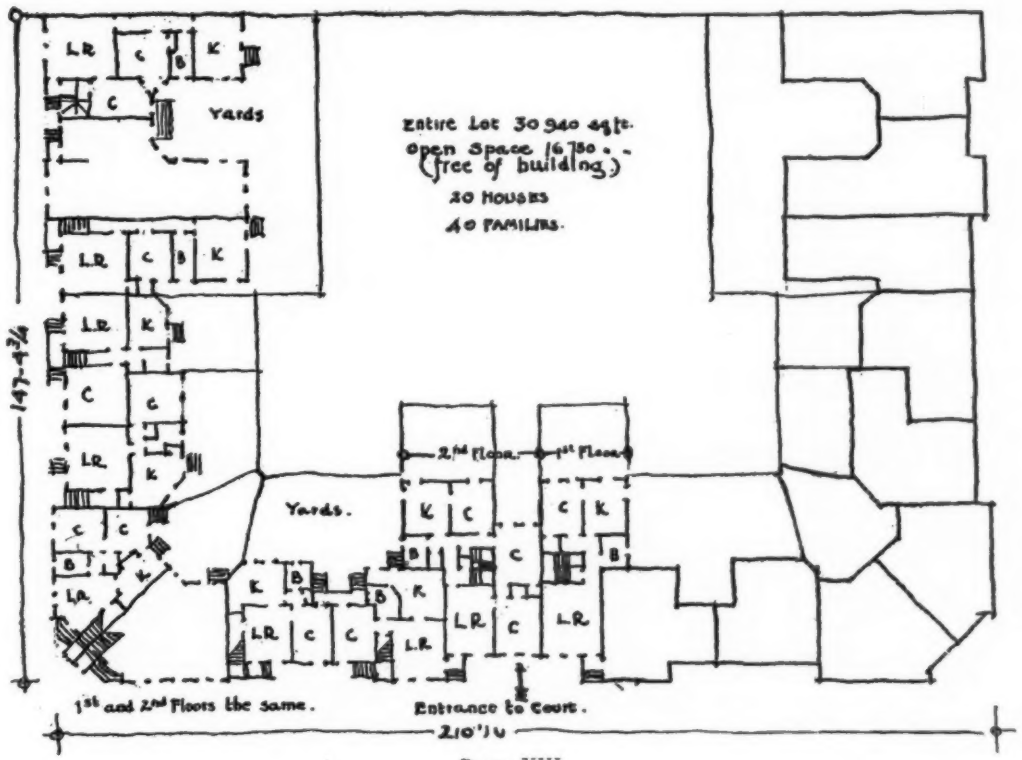


PLATE XIII.

tions to air and sun. This arrangement of house and lot has the psychological advantage afforded by ownership of a single complete integral unit which is not obtained when the yard is separated by even a short distance from the house. These houses may be made weather-proof, vermin-proof, and fireproof, at a cost of $3,207.00, which includes profit for the contractor and architect's fee, besides such items as mechanical beds, weather strips, window and door screens, fences, walks, roads, and individual hot water systems.

"Assuming an average value of $30.00 per front foot for the land and there being eight (8) lots in this 100 feet front, each plot would cost only $375.00, which would make the entire cost of the premises with almost complete furnishings, $3,582.00 These figures were obtained early in January, 1920, and may not be correct at the present time. Further reduction in first cost might be effected by elimination of the fireproof feature and the substitution of other materials for the plastered hollow tile walls. A complete description of this house would be too long for inclusion in this article".

In explanation of the estimates used in Mr. Young's exposition of his plan, it should be said that the costs are based upon a large building operation using a single type of building. The costs evidently include the items of minor streets, water and sewer laterals, since the lot cost is taken at ¼ of the cost of 100 feet original frontage at $30.00 per foot.

Intelligently to compare Mr. Young's plan with, for instance, the normal lot 30′ x 80′ shown in Fig. 1, Plate X, the costs must be reduced to the same basis as follows:

	30 Lot Plan	*Cottage Court Plan*
Cost of gross land used at 25c per sq. ft....	$810	$550
Cost of streets and lanes.....	420	260
Cost of utility laterals and house connections.....	165	125
Total per unit.....	$1395	$935

Plate XIII shows a plot plan for a community development designed by Mr. John Irwin Bright for the Octavia Hill Association of Philadelphia and now being built. Here is a very interesting study comprising 20 two-family flatted dwellings with adjoining party walls, based upon 9 different types of three, four, and five-room units, each having its bath and independent front and rear entrance. Sufficient space at the rear of these dwellings provides ample opportunity for clothes yards and similar purposes while a very adequate community playground or lawn occupies the large interior free space enclosed within the boundaries of these yards. Assuming for comparative purposes that this plot as elsewhere in this discussion is surrounded by 40′ streets on two sides and a 50′ street at the end frontage and that a 10′ right-of-way is required to reach the central community space, we have a total gross area of 52,000 square feet or 1300 square feet per

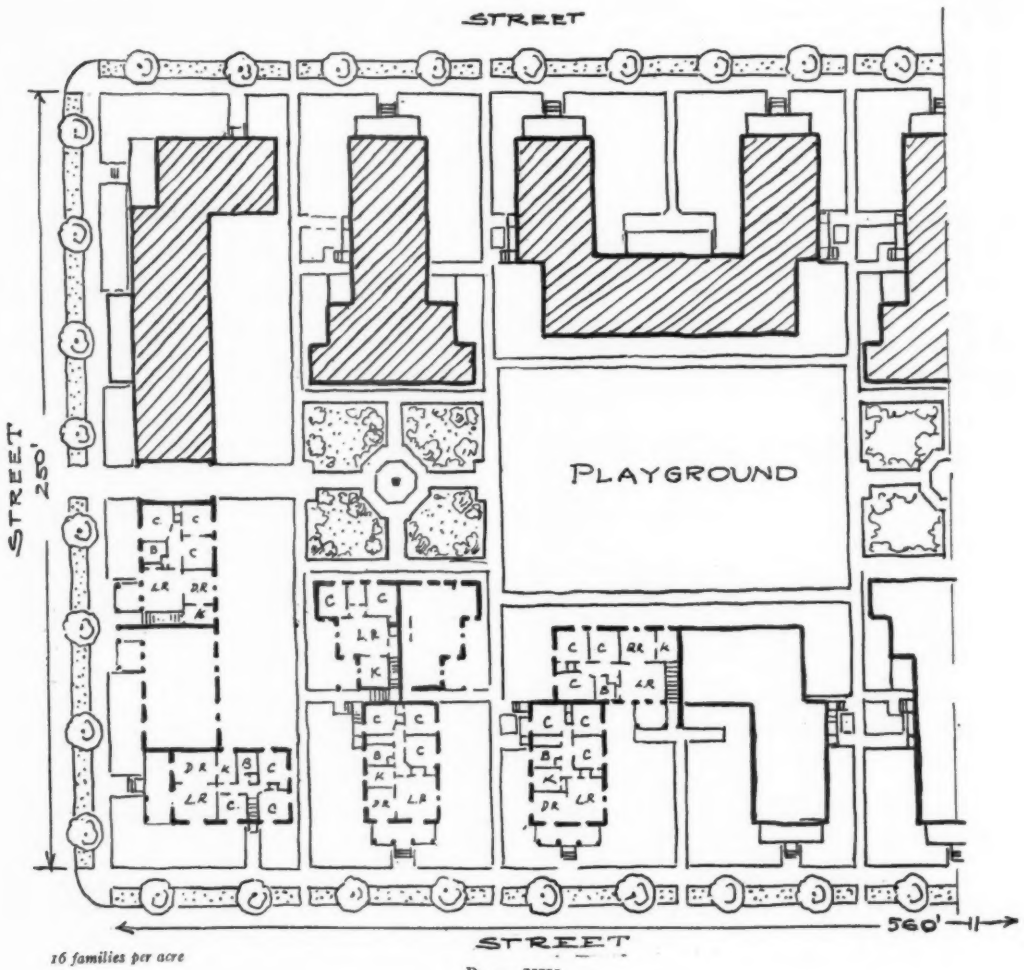


PLATE XIV.

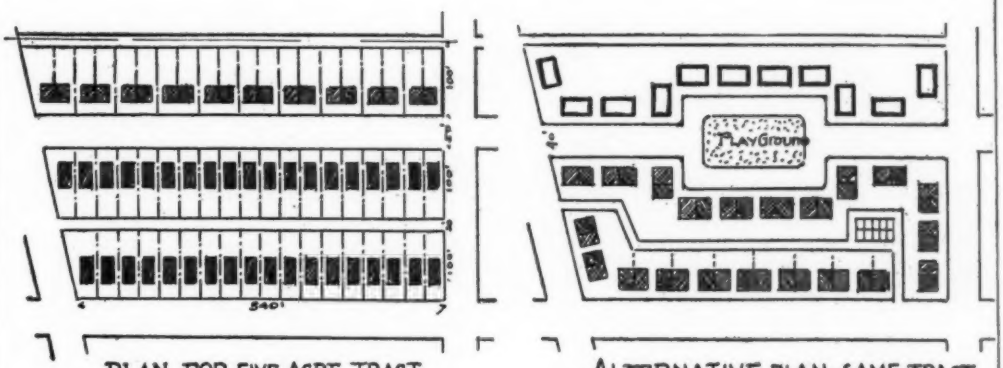
family. The comparative costs therefore for site at $10,000 per acre will be per family as follows:

Land 1300 square feet gross	$300
Streets	120
Total	$420

Comparing this with Fig. C, Plate II for which the items of land and street cost were from $675 to $700 per family, we may see the site economy of such an arrangement as compared with the usual type of party-wall house prevalent in Philadelphia. Considerations of saving in building cost were probably of even greater moment.

Plate XIV is a study by Mr. Clarence S. Stein, Architect, of New York City, for a development based upon a T-shaped six-family unit which has been designed and built under the plans of Mr. Stein in that city. This provides for a series of four and six-room dwellings arranged as flats on two floors. The size of these dwellings is generally larger than most of those previously considered, a point which should be taken into account in judging the relative efficiency of these buildings. In most instances there has been provided a kitchen, dining room, living room, three chambers and bath which under present conditions seems a very commodious apartment. The arrangement of the units upon the plot not only provides a large amount of light, playground and lawn space but a freedom of access and use which is very commendable. The sketch shows one-half of the development for a block 250′ x 560′ net. Based upon our uniform street width the gross area occupied by 62 family units is 290′x 610′ or 176,900 feet. We have therefore for comparative study a cost per family as follows:

Land 2850 square feet	$712
Streets	227
Total	$939



PLAN FOR FIVE ACRE TRACT.

57 SINGLE FAMILY HOUSES - LOTS - 30x100

GROSS AREA PER FMLY 4500 ☐' @ 15¢	675
STREETS & ALLEYS	510
GRADING, ENGINEERING, INTEREST ETC PER FAMILY	255
	$1440
64 SEMI DETACHED HOUSES LOT - COSTS - PER FAMILY	$1265
28 FOUR FAMILY BUILDINGS LOT COST PER FAMILY	$720

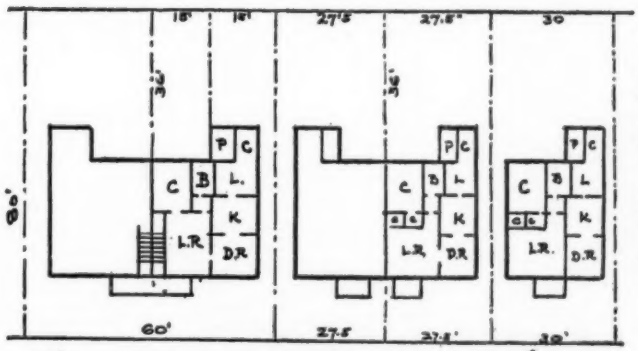
Total cost UNDER THIS PLAN PER UNIT FOR "A" $4760 "B" $6513 "C" $7254

ALTERNATIVE PLAN-SAME TRACT.

64 SINGLE FAMILY HOUSES LOTS 30x80

GROSS AREA PER FMLY	608
STREETS & ALLEYS	500
GRADING ETC.	250
	$1383
70 SEMI DETACHED HOUSES LOT COST PER FAMILY	$1237
32 FOUR FAMILY FLATS LOT COST PER FAMILY	$676.

TOTAL COST UNDER THIS PLAN PER UNIT FOR "A" $4715 "B" $6485 "C" $7168



"A" FOUR FAMILY DWELLING "B" SEMI DETACHED "C" SINGLE - IDENTICAL ACCOMODATIONS. NO BASEMENTS.

NOTE:

No material difference in cost for site is shown between the two plans here shown, but the alternate plan has advantages for grouping of the larger building units and provides community amenities which readily compensate for reduced individual lot area.

The remarkable showing in reduced cost for grouped and multy family dwellings is however a result of the combined factors of site and architectural planning.

DIAGRAMS FOR STUDY OF FIVE ACRE TRACT IN RELATION TO LAND SUBDIVISION & SELECTION OF HOUSE TYPES.

PLATE XV.

In all of the foregoing illustrations, it must be very evident that in large block units, with a scheme of community planning to allow the concentration of the dwellings around the perimeter, there is a great gain of internal area. This represents land reclaimed from the usual excessive street provision found in the customary methods of small block subdivision prevailing in the congested sections of our larger cities Is it any wonder therefore that not only must our taxation be greatly augmented by the cost of the construction and upkeep of this unnecessary street provision, but also that the children must necessarily resort to the streets for play, rather than to a suitable space which might otherwise be provided for their uninterrupted and safe use? Is there moreover any excuse for those great sections which exist even in our cities of smaller population where the only outlook from the dwellings of large numbers of people is either upon a narrow rear court or dusty and noisy pavements? It may be well to note that the principle here recommended has been successfully applied to large apartment groups on the very highest priced land, especially in apartments recently built by Mr. A. J. Thomas, Architect for the City and Suburban Homes Co., of New York City.

In the consideration of any actual housing project we must of course take into account all of these various factors and weigh them in relation to methods of finance, ownership, and use most feasible in any undertaking. As to the actual tendency of use or disuse of the individual yard space, we are safe in saying that such use generally will be found to be less than we would like to admit and may be readily supplanted by the community garden and playground. The only adequate way to arrive at a true conclusion in any particular instance is to develop a plan for various types of housing over a sufficient area to include all of the factors of physical development, operation, and maintenance. As an illustration of such a method, we may consider a recent plan by the author for a city tract containing about five acres net surrounded by established and partially improved city streets. In making the deductions, however, it was assumed that surrounding streets were of a normal width and their improvement cost was included accordingly. Alternative plans for the tract are included on Plate XV. All external improvements were taken into consideration on a uniform basis of cost and combined with estimates upon three different types of buildings together with their external accessories but including no profits or operating charges other then interest during the construction period. The three types of dwellings considered had in all cases an identical floor space except for that occupied by stairs which in the case of a two-family flat required a larger total floor area. The living space furnished in each case consisted of a large living and dining room, one bed room, bath, kitchen, laundry and coal storage, heated by individual heater in the laundry. The comparative cost results for the three types of buildings were approximately in the relation of 9, 12.5 and 14. The 9 represents the cost of a four-family building on a lot 60 feet wide, as previously illustrated in this paper in Plate IV; 12.5 represents a one story semi-detached cottage on a lot 27 1-2 feet wide for each dwelling; and 14, an individual cottage on a 30′ lot. The increase of 55 per cent in the cost of the individual house over the same space in a four-family building is to be found partly of course in the efficiency of two stories within the same roof and foundation, but fully 30 per cent of the increase may be traced directly to the external elements of site and occupancy.

It would be interesting to carry on similar comparisons in relation to row and group houses of various kinds but the principal object of this discussion is to emphasize losses sustained in really trivial and nonessential paraphernalia which have accumulated through custom and thoughtless methods of land subdivision and building during a period in which efficiency in such matters has had a very small place in our consideration.

(Additional copies of this report may be had at forty cents each)